

**BIBLIOGRAPHIC DATA SHEET**

1. CONTROL NUMBER PN-AAH-658	2. SUBJECT CLASSIFICATION (695) JD10-0000-0000
---------------------------------	---

3. TITLE AND SUBTITLE (240)  
Information requirements for educational planning; a review of ten concepts

4. PERSONAL AUTHORS (100)  
McGinn, Noel

5. CORPORATE AUTHORS (10)  
Harvard Univ. Ctr. for Studies in Education and Development

6. DOCUMENT DATE (110) 1979	7. NUMBER OF PAGES (120) 57p.	8. ARC NUMBER (170) 379.1.M145a
--------------------------------	----------------------------------	------------------------------------

9. REFERENCE ORGANIZATION (130)  
Harvard

10. SUPPLEMENTARY NOTES (500)  
(In Harvard Institute for International Development, development discussion paper no. 67)

11. ABSTRACT (950)

12. DESCRIPTORS (920)  
Educational planning  
Planning  
Information  
Models  
Problem solving

13. PROJECT NUMBER (150)  
931008900

14. CONTRACT NO.(140)  
AID/ta-C-1336

15. CONTI  
TYPE (

16. TYPE OF DOCUMENT (160)

379.1  
M145a

PN-AAH-65

# Development Discussion Papers



Harvard Institute  
for International Development

---

H A R V A R D      U N I V E R S I T Y

INFORMATION REQUIREMENTS  
FOR EDUCATIONAL PLANNING:  
A REVIEW OF TEN CONCEPTIONS

Noel McGinn

DEVELOPMENT DISCUSSION PAPER No. 67  
June 1979

HARVARD INSTITUTE FOR INTERNATIONAL DEVELOPMENT  
Harvard University,  
1737 Cambridge Street,  
Cambridge, Massachusetts,  
02138, U.S.A.

Development Discussion Papers 59 through 73 were originally prepared for the United States Agency for International Development under a research contract with the Center for Studies in Education and Development of the Harvard Graduate School of Education. The Harvard Institute for International Development collaborated with the Center in this project and the papers included in this series are a sample of the contributions by participants affiliated with HIID.

- © Under the terms of the contract with USAID, all rights are reserved. No part of this work may be reproduced in any form by photostat, microfilm or any other means without written permission by the author(s). Reproduction in whole or in part for any purpose by the U.S. Government is permitted.

## CONTENTS

<u>Section</u>	<u>Page</u>
Introduction	1
1.0 Dimensions of Differences Between Conceptions	1
1.1 Difference in Emphasis on Phase of Planning	3
1.2 Differences as a Function of Research Paradigm	5
2.0 Conceptions of Information Requirements	7
2.1 Brolin 1964	8
2.2 Davis 1966	11
2.3 OECD 1967	13
2.4 Chesswas 1969	15
2.5 World Bank	17
2.6 Davis 1972	19
2.7 USAID 1974	25
2.8 USAID 1976	27
2.9 World Bank 1976	31
2.10 World Bank 1977	33
3.0 Comparison of USAID and World Bank Conceptions	35
4.0 Summary	39
5.0 Conclusion	41
References	
Tables (1-10)	

INFORMATION REQUIREMENTS FOR EDUCATIONAL PLANNING:  
A REVIEW OF TEN CONCEPTIONS

Introduction

Planning begins with the analysis of information about some reality. Too often, as we all know, that information is not readily available, and we are tempted by books with titles such as that by Stolper (Planning Without Facts, 1966). But, alas, Stolper's thesis is precisely that given a situation of ignorance one must set about collecting facts in order to make reasonable statements about future courses of action.

Which reality? What information? Even within the profession there is considerable disagreement as to what information is required for educational planning. The proposals reviewed in this paper illustrate different conceptions of information requirements. In some cases those differences are technical and minor, but in others, they suggest significant disagreement about the basis for and function of planning.

1.0 Dimensions of Differences Between Conceptions

The major differences seem to be these. First, a scheme for collecting and analyzing information requires some definition of the "reality" that is described. Proposals vary in the extent to which there is even an implied model of reality used to guide the scheme, let alone the extent to which the model is made explicit.

Second, the underlying models take different approaches in their definition of the "subject" of the planning exercise, whose behavior is to be modified or controlled by the plan. Some of the proposals define the subject as a system (e.g., the formal school system) while

others treat as the subject the various actors (e.g., units within the Ministry; teachers, students). In some of the proposals the behavior of the subject is defined as mechanistically determined; that is, totally influenced by events or factors beyond the control of the subject. The planner collects data in order to predict the behavior of these systems or actors under different conditions. Other proposals see the system or actors as goal-seeking, as choosing among various alternatives according to their objectives. The proposals taken together suggest three things the planner can do. He can attempt to change the "subject's" behavior by modifying inputs (e.g., more or less teachers, buildings); or by changing the structure of the systems (e.g., adding a new program). Or he can merely predict the subject's behavior given other events.<sup>1</sup>

The different conceptions of planning are associated with different goals for the planning exercise. Some of the proposed schemes seem appropriate for systems seeking to maintain the present state of affairs. While others are more appropriate for planners who seek change. Some of the proposals deal only with macro-system variables, while others require more micro-system information. Some of the proposals are concerned only with quantitative changes in the system (i.e., more or less buildings or students) while others are specifically interested in changes in quality of the instructional process.

---

<sup>1</sup>For further elaboration of these issues, see Churchman (1971) or Mitroff and Pondy (1974).

### 1.1 Difference in Emphasis on Phase of Planning

Information requirements also differ according to the emphasis given to the phases in the process of planning. For the purposes of this review, planning is defined as a problem-solving process that begins normally with the detection of problems requiring action, passes on to the diagnosis of those problems, requires prescription of solutions to the problems, and finally specifies procedures for implementation of those solutions. Our language forces us to lay out this process in a linear fashion; it is, of course, more complicated than that, usually involving several iterations and feedback and feed-forward cycles.

There has been considerable discussion of the relative importance to be given to each of these phases (or some other specification of the process). Some<sup>2</sup> have insisted that planning should be limited to the technical analysis of problems of systems, namely diagnosis and prescription, while others<sup>3</sup> have included attention to detection (or definition) of problems and to the actual implementation of plans. These differences in emphasis emerge clearly in the proposals for information collection and analysis reviewed in this paper. A concluding section offers some explanation for those differences, and a comment on what is missing in the schemes developed to date.

The responsibility for detection of problems requiring action is almost always assigned to politicians rather than to planners, because

---

<sup>2</sup>For example Dror (1963) and Anderson and Bowman (1967).

<sup>3</sup>For example, Beeby (1969).

it requires a specification of goals and objectives for the educational system and the larger systems of which it is a part. But planners as analysts frequently wield tools and instruments that can assist in the process of goal identification and clarification, in the establishment of priorities, and even in the development of new objectives. These tools and instruments can, as is shown in the various conceptions, generate information essential for the determination that a problem exists, that current goals and objectives are not being met, or that they are being met in a manner that is prejudicial to other goals and objectives or operating principles. As we shall see, planners differ on whether it is their responsibility to accumulate and analyze data for problem detection.

Given a level of dissatisfaction that cries for action, a logical next step is to diagnose the problem, that is, to conceptualize the possible causes of the system's failure to reach objectives or to stay within desirable limits of resource expenditure. Explanation of system failure can be in terms of proximate or ultimate causes. Included under proximate causes would be endogenous system variables, such as level of support, administrative competence, content of programs, teacher qualifications. A planner interested in more ultimate causes would seek information about why a program was insufficiently funded, or why more competent administrators had not been hired, or why program content was not relevant. Explanations for these phenomena could lie outside the system itself, in relationships of education with other sectors of the society. Because definitions of the role of the planner have varied in the extent to which attention should be given to

variables outside the educational system, it will not be surprising to find that conceptions of information requirements vary in attention to exogenous factors.

Ability to define the causes of a problem does not automatically generate solutions to it. The development of a response to a problematic situation is a separate step from the diagnosis of the problem. Once alternatives to the present state of affairs are conceived, three kinds of information are required for the prescription of a solution. The planner needs to know whether resources are available to carry out a given alternative. He needs to know whether an alternative is politically and culturally feasible. And he needs some information as to whether an alternative will in fact produce the desired results. If the diagnosis stage may be likened to a process of building a model of reality, then the prescription stage is similar to the process of "solving" the model.

Once a solution has been chosen, or a model developed and solved, the task is one of implementation of the specified actions. The ten proposals generally include for implementation the same categories as for the previous stages (e.g., resource bases, program structure, procedures), but with much finer grain. Time is a critical variable in implementation, not found in specifications of information needs for other steps in planning. Information is sometimes stated to be needed on rate of resource expenditure, progress toward targets and changes in organization structure and environmental context. This kind of information allows continuous adjustments as the system moves toward its goal.

## 1.2 Differences as a Function of Research Paradigm

Differences in conceptions of information requirements also

depend on notions of what methods of data collection and analysis are most appropriate. Planning, especially as done by persons trained in the social sciences, tends to have followed a "dominant paradigm" that pays more attention to the "neatness" of a proposed method or solution than to actually effecting change in an organization. Patton (1975) contrasts the dominant with an "alternative" social science paradigm on the following dimensions.

Dominant Paradigm

quantitative  
concerned about reliability  
objective  
distant from data  
focused on impact of components  
concerned about outcomes  
for scientists  
large samples  
interested in generalizations

Alternative Paradigm

qualitative  
concerned about validity  
subjective  
close to data  
holistic analysis  
concerned about process  
for practitioners  
case studies  
interested in uniqueness

A concern for implementation could be reflected in a scheme for meeting information requirements closer to the alternative paradigm than the dominant paradigm. Data could well be qualitative, e.g., reflect opinions and attitudes of key actors rather than carefully measured positions. Validity, or relevance, would be more important than the reliability of measurements, given that in most cases the problem would be to change the nature of reality, rather than count on its perpetuation. There would be more tolerance for "subjective" judgments, in which consensus would not be the basis for deciding which information should be included. This kind of information would necessarily require being close-up to the situation, handling a complex set of variables at once in a synthetic (or holistic) manner. Information dealing with the process of change in the organization would be more valuable than information on

specific outcomes, especially as implementation is seen as a continuous, iterative process. The information provided would be more useful to a person interested in acting on the system than one interested in studying it. This type of information usually requires case studies of specific organizations and their problems, rather than comparative studies across organizations, and fits with an interest in ginning-up problem-specific solutions rather than generalizations across organizations.

These characterizations have been drawn to the extreme for the purpose of highlighting differences in the conceptions of information requirements that will be reviewed. Good planners, like good social scientists, have always used combinations of approaches according to the problem under consideration. But it is possible to see differences in emphasis among the approaches taken to educational planning, and to explain their differences in terms that are meaningful for the development of the art.

## 2.0 Conceptions of Information Requirements

This paper reviews ten different conceptions of information requirements developed since 1964. No doubt there are other proposals that could be added to the set,<sup>4</sup> but it is felt that these ten represent

---

<sup>4</sup>A review of 10,000 items on educational planning done by Webster (1969) turned up 20 references to data needs and information requirements. Apparently the first proposal to be published was by UNESCO (1961), followed by de Escondrillas (1963). Also not included here is Khare (1963) similar to UNESCO (1964); Chesswas' first scheme (1967); and the recommendations contained in Correa (1969). Proposals designed for specific countries are not included, although they may have significant merit. Two examples are Durstine's (1974) proposal for Brazil and Fuller's (1971) study in Bangkok. If there have been proposals published since 1969 other than those mentioned here they have escaped my attention and should be reviewed.

the major approaches used in educational planning as promoted in Europe and the United States.<sup>5</sup> The ten proposals are reviewed in chronological order, using the questions and categories presented in Section 1 of this paper. In the conclusion, I present a brief critique of these conceptions, in terms of their utility for planners in developing countries.

## 2.1 Brolin 1964

Table 1 presents a list of data requirements for educational planning developed by K.G. Brolin in 1964, in one of the earliest publications of UNESCO on techniques of educational planning. In presenting his proposal Brolin apologized for its limitations explaining that:

... no single standard scheme can be prepared for the choice and treatment of statistical data that would be suitable for all types and purposes of educational planning... (p. 224)

because planning can be specialized or comprehensive, local or nationwide, short or long-term. His list is, therefore, extensive and not all the data should be considered as obligatory, even if it were all available. He concludes that what information is required will be a matter of judgment in each case, as the planner examines the specific requirements of the situation. Brolin includes the following in his minimal list of requirements:

---

<sup>5</sup>It should be noted that all ten conceptions of requirements were devised for use in developing countries. A search of the ERIC System using "educational planning" and "data needs" as key words turned up 21 entries referring to the United States. Cornish (1975), Higgins and Conrad (1973) and Andrew and Moir (1970) are authors of three schemes included in that set of entries. Neither three seems particularly relevant for planning education in developing countries as the focus is on planning at the level of the school district, and the projection of needs for new facilities.

1. total population by sex and age;
2. some data, or estimates on natality and mortality;
3. schools, by level and type of education;
4. teachers, by level and type of education, and by sex;
5. pupils enrolled, by level and type of education, and by sex and grade;
6. graduates, by level and type of education and by sex;
7. school buildings, by level and type of education and by size and type of construction; and
8. public expenditures on education, by level and type.

He distinguishes between educational statistics and others, suggesting that it is possible to plan for the educational system without taking other sectors into account. His longer list of data suggests, however, at least a concern for seeing the possible relationships between graduates, and labor force projections for the future (although it will be noted that the data base he proposes is not sufficient for a manpower analysis).

Brolin's presentation did not include discussion of the purposes of education, its internal objectives, or fit with objectives of the larger society. UNESCO thinking in the early 1960's dealt principally with the need to expand educational systems to meet social demand, and secondarily with the economic benefits of expanded education (anticipating the argument of Harbison and Myers to be published also in 1964). "Social demand" was treated as an undefined aggregate measured through demographic statistics. This essentially abstract concept appears to have been derived from developed-country notions of the benefits of universal education, and the importance of providing educational opportunities to all.

The implicit model is, then, one of a system that provides students with "education" using as inputs teachers and buildings. The focus is on the capacity of the system to handle students; their numbers are a function of population characteristics, public expenditures and flow rates. The planner's role is to predict how the system should behave given projections of future states of the controlling variables. Planning helps anticipate the accommodations the system will have to make to handle different numbers of students.

Brolin's data set could be used for detection of need for action only if one made explicit certain criteria or objectives, for example, that n% of the age group should be enrolled in primary school, or that enrollments in the secondary level should be a given fraction of enrollments in primary, or that graduates of a certain level should be n% of those enrolled. It might also be used to indicate the crude fit existing between projections of the labor force and graduates of third-level programs (although this tells nothing of present shortfalls or over-supplies).

Other than physical and human resources and recurrent expenditures the proposal provides nothing to permit a diagnosis of problems of the system. The information that would be collected allows only an analysis at the level of saying "if not enough students are enrolled in primary school, more teachers will have to be trained and schools built." No information is provided as to why this has not happened, that is, it assumes that the principal task of the planner is to provide information as to the deficiencies (or strengths) of the system as currently structured.

The nature of the underlying model shows clearly in the information it provides for prescription of solutions. Expansion is the single alternative; how much to expand is a function of gross national product (as a proxy for availability of physical capital for education). There is no analysis of constraints to expansion (e.g., limitations on the numbers of teachers that could be produced in some future time). Information about results of expansion of the system are limited to the numbers of graduates of various kinds that might be generated. No information is suggested that would be helpful in planning the implementation of proposals.

## 2.2 Davis 1966

The information base sketched out in Table 2 is taken from one of the earliest publications laying out systematic models for educational planning. The table does not do justice to the requirements for information that are specified in Davis' book; he includes and reviews a wide variety of variables and measures of importance and potential use to the planner. But the wealth of material was so much and the number of models reviewed so great, that it was not possible (nor perhaps desirable) to present a single list of important data.

Davis differs from Brodin in terms of being explicit about the models used to represent the reality of the educational system. There is, he argues "as yet no general model or set of models which describes, explains, or predicts how a society develops its human resources by educating and training its members." But, he goes on, the planner makes his contribution principally by the development and application of models.

There must be models, or at the very least schemata, for assessing and forecasting resources to meet the requirements. There must be schemata and routines for allocation of resources to education and training, rather than to other socially beneficial or productive uses. There must be models for allocation to some levels and kinds of programs within education, rather than to others... (p. 11)

Almost all the models described represent the educational system -- rather than the actors within it -- as the subject, although recognition is given to the existence of sub-systems within the educational complex and the need to collect data at the least aggregated level possible. The models describe systems that are mechanistically determined; the planner's task is to forecast future states and resources to allow for a choice among alternatives to be applied.

Fundamental objectives for the system are not the subject of the planner's inquiry nor are assumptions about the role of education part of the discourse. The information system he proposes is, therefore, intended to aid in the steps of diagnosis and prescription. The planner begins his work once the politician has left off, taking the goals set by the politician and determining what is possible, what "makes sense." Davis notes, "The controlling decisions are often politically and socially inspired, and not necessarily rational; and the most objective arguments can be swept away by the unbearable pressures that politicians face." (p. 24)

Similarly, problems of implementation generally are excluded from the list of assignments given the planner. If the model is well done, it takes into consideration many of the constraints to implementation (e.g., by recognizing differences between regions, problem of school calendars, variations in costs and quality). But the actual organization of a Ministry to carry out a plan once generated by the models apparently is not included within the process of planning itself, nor

does the Davis proposal provide much information or analysis useful in planning implementation.

### 2.3 OECD, 1967

The set of criteria that Davis proposed to use for fixing plan objectives would emerge from a careful analysis of national needs (or the "irrational" decisions of politicians). Other planners in the 1960's, however, were recommending use of international standards of comparison to set educational targets.

They (international comparisons) provide a basis for setting targets... data from other countries can supplement national data in the estimation of forecasting parameters and coefficients... (OECD, p. 14)

The rationale for use of international comparisons was straightforward. Development was conceived as a universal and deterministic process. The less-developed countries would have to pass through essentially the same stages of growth and change to reach the levels of living enjoyed by the developed countries. An examination of the characteristics of education in the developed countries would serve, therefore, as a means of discovering what the less developed countries would have to achieve.

(This handbook) therefore attempts to provide a basis for a set of indicators of educational effort which will help individual countries to evaluate the magnitude and orientation of their educational achievements in relation to those of other countries at various stages of economic development. (p. 14)

As it turned out, the educational systems in the less developed countries with which planners had experience were remarkably similar to those in the developed countries in structure, although not in

quality and efficiency.<sup>6</sup> The problem for the planner was, therefore, one of determining the set of investments and procedures necessary to raise the quality and output of the educational systems of the less developed countries. As the OECD Planning Handbook stated it, the principal questions were: How should the size and structure of the system develop during the next few decades? and, How many students should be enrolled in each of the branches of the system?

The answers to those questions were derived from conceptual and mathematical models of the relationship of the educational system to other sectors of the society. In the OECD conception (Table 3), these models were operated by manpower planners or others; the task of the educational planner was to determine how to expand the system's outputs, given information about demands on it and its internal operational characteristics. Flow of students into and through the system was the critical problem of analysis. The OECD scheme was one of the first to introduce social class as an important variable in accounting for differences in students' movement through the system, implying that the underlying model included some linkage between variables in the economic system and those in education.

In sum, this proposal tended to finesse the questions of information for determination of objectives, and to define problems and the need to act by comparison of the system's inputs and outputs with

---

<sup>6</sup>In the 1960's only a few planners thought much about the reasons for and desirability of those similarities. It is now fashionable to accuse the ex-colonies of slavishly imitating industrial nations, ignoring the planners' role in that reproduction. (Williams, 1975)

more developed countries. The use of the model would tend to generate single solutions, or solutions all of the same class. No information was collected for use in planning the implementation of changes in the system.

#### 2.4 Chesswas, 1969

An essentially similar conception is that presented by Chesswas in 1969 (see Table 4). The basic statistical data said to be necessary for educational planning deal with inputs to the system, and outputs in terms of system-defined categories (e.g., graduates by type of program); no information is called for that would allow the educational planner to identify objectives of the national system, and relate education's product to those objectives. Nor does the scheme call for information useful in the redesign of the system nor the implementation of plans once drawn.

But although Chesswas did not include the kind of information in his proposal, he did argue that planners need to know about more than just the internal operations of the system. "Educational planning is not simply, nor necessarily predominantly, a quantitative matter. It is an inextricable mixture of qualitative and quantitative considerations..." (p. 14) He went on to suggest the following as features of a country or its educational system that are important for planning:

1. political-administrative structure of the country;
2. ethnic and/or linguistic distribution of populations;
3. religious distribution of populations and the influence of activities of religious organizations in educational affairs;
4. socio-economic distribution of populations;

5. division of schools between public and private support, and further sub-division of private schools into those receiving government aid, and those non-aided;
6. proportion of mixed schools and separate boys' and girls' schools;
7. existence of multi-shift and/or multi-session schools;
8. day and boarding education and transport of students; and
9. the nature and content of non-formal education and the distribution of responsibilities for specific courses between formal and non-formal education.

Chesswas also noted the importance of the planner having contact with the operating divisions within the Ministry of Education, the national planning agency, other ministries connected to education, universities, local educational authorities, and private school authorities. In the stage of formulating proposals for policy (defined in this paper as the diagnosis and prescription phases) the planner has to take into account national objectives, educational content to reach those objectives, methods to help students learn those contents, structure of system and numbers of students. This conception clearly is different from that of Brolin, Davis or the OECD.

But it is not clear how these factors are to be related, nor how to take into account the other factors numbered above. It was well and good for Chesswas to state that planning has qualitative as well as quantitative dimensions, but in fact he dealt in a systematic fashion only with quantitative information. Furthermore, although his apparent model sounds teleological, in the end he treats the system as mechanically determined, controlled from the outside by the manipulation of inputs.

Chesswas defines educational planning as the process of calculating:

what it all means in terms of human, physical, and financial resources which must be employed in the context of wider national development, so as to ensure that the proposals are feasible and appropriately linked to the over-all development plan... (p. 12)

The only means he provides for performing this calculus involves the use of the data included in his formal scheme, which can be analyzed using the various models that have been developed for studies of flows, costs, staffing requirements.

## 2.5 World Bank, 1969

A quite different list of information is that described in Table 5, on Information Requirements for Education Project Appraisal. The proposal describes the information required for evaluation of projects, rather than plans for the entire educational system. As a consequence it is more detailed, and narrow in scope, than the previous lists providing information for national planning exercises. It is explicit that the information is sought by an organization external to the government and the Ministry of Education.

At the same time, this proposal suggests information useful for the educational planning process that is not included in the proposals reviewed above. The World Bank asks two major questions:

1. Is the project urgently needed?
2. Is the project soundly conceived?

These can be taken as Detection and Implementation questions. The first question is answered by comparing the production of the education and training system with the manpower requirements of the country. Unemployment, wage rates, importation of expatriate manpower, and evidence of shortages by economic sector and occupation are among the variables used

to evaluate the demand for education. The current system is then evaluated in terms of its ability to satisfy that demand. In addition to the information described in the previous proposal, useful in solving models of system operation to detect shortfalls, this scheme includes a number of other variables dealing with the system's capacity to respond to external demands. These include much more detailed information on the types of educational institutions in the country, their administrative structure, characteristics and supplies of teachers, and agencies outside the Ministry that provide education and training, use of educational research, school facilities, and finance.

The state-of-the-art in 1969 did not include these kinds of variables in formal models of the system and to major extent, therefore, the information provided is used in a theoretical, ad hoc fashion. But the model is clear. By altering inputs to elements (sub-systems), the planner can alter the structure of the system and consequently its outputs. There is an implication (e.g. in "utilization of research results") that the system is (at least partially) self-conscious, therefore goal-seeking and capable of altering its own structure. But the proposal is silent on the kind of data that should be used to assess the latter.

Planning is intended to change both quality and quantity of outputs, of both macro (e.g. system structure, overall production) and micro (e.g. program content) levels. But, probably because this is a project appraisal scheme, information about the normal change process is not recommended.

This conception of information requirements does differ, however, from those reviewed earlier in terms of attention to problems of implementation. Such an emphasis is consistent with the Bank's

preoccupation for seeing that its loans are well-spent, that the money promised is actually used, and that it is used for the purpose intended. Problems of implementation are all defined as occurring within the system. These problems can originate in physical facilities, administration, and scheduling. The list does not call for data on exogenous influences on the implementation of a project. There is no analysis of the political context in which the project was conceived, or in which it will be implemented. Like the previous proposal (with the exception of that by Davis ) "development" is treated as a unitary national phenomenon -- all the possible system outcomes are evaluated at the national level; there is no attention to problems of distribution of outcomes among different groups or regions.

## 2.6 Davis, 1972

One proposal that deals explicitly with the question of disaggregation of the planning task (and consequent information requirements) is that presented by Davis in 1972 (Table 6). This scheme was presented originally in a paper reviewing the organization, planning and management of education in the developing countries. Davis began by reviewing the history of educational planning. After commenting on the progressive sophistication of the planning process, especially the adoption of mathematical models, he observed that planning has had little if any effect on major policy decisions for educational systems.

It is true, he argued, that statistics for planning have been inadequate, that governments have not supported planning activities as they should, that there have been too few trained planners in the various countries. But the major difficulties in planning are other than technical questions, he asserted.

The major weakness of planning is in organization, rather than technical, terms. Planning was conceived in the wrong way, located in the wrong place, structured in the wrong way... the task for the future is not so much improving the techniques of planning, analysis, and management control as it is in insuring that planning and management is not an isolated, centralized activity, but one that goes throughout the organization. (p. 16)

For planning to achieve its full potential, three things will have to happen. First, but not most important, there will have to be improved techniques. Second, educational organizations will have to carry out different tasks than currently performed. This, in turn, will require a change in the conceptualization of planning.

The changes in tasks to which Davis referred will come about when countries move away from concern solely for providing access to education, toward provision of education that makes a significant difference in the lives of students and, through changes in them, the social and economic operation of the country. Many developing countries, he pointed out, have already approached universal enrollments in compulsory education; now the problem is one of giving students an education that will have some relevance for themselves and their country.

Davis listed four ways in which this can happen. First, by providing not just access to schools, but also increasing retention and promotion. Second, by increasing, in a measurable way, the skills and knowledge acquired through schooling. Third, by producing changes in attitudes and values. These are more difficult to measure, he acknowledged. Finally, by providing knowledge, skills, attitudes, appreciations and values that are relevant to performance in a given society, polity and economy. He argued that the best chance for realizing this is through increased participation in decision-making within the educational system, so that those most informed about a particular matter can apply their information

in the shaping of relevant policy. This is what he had in mind when he suggested that planning should guide the behavior of everyone in the educational system, from students and parents to the Minister of Education.

The basic activities of planning remain the same.

The only difference proposed is for these activities to go forward at all levels of the organization, rather than being confined to a national, centralized planning office. The activity begins with determining goals and alternative means for reaching them, and assessing goals and means for benefits and costs. Costs determine resource requirements. Resources are estimated and constraints are set and alternatives modified to fall within them. This yields a feasible program for accomplishing the goals and implementing the alternatives. Progress toward implementation is assessed and program developments are monitored in accord with the assessment.  
(p. 33)

With this conception models would remain as important as ever, but they would be used at different levels in the system, with different levels of aggregation of data. The models would be solved not just from the perspective of the central planning office, but from that of each of the various levels of the system.

The model is one of goal-directed actors seeking to maximize their own utilities within the parameters of the educational system. The subject in Davis' model is, therefore, not the educational system qua system but rather the various actors (at different levels) who combine to make up the system.

The goals of these actors must be bounded for the model to be solvable. Davis noted that for systems-wide participation in planning and management to be successful, all members must,

... accept the basic approach of systems-wide planning and support this choice by assigning and accepting authority, information and resources for planning and management at all levels of the system.  
(p. 34)

The central assumption that must be accepted is that all members can benefit from agreeing to cooperate, that planning is not a zero-sum game in which some will benefit from the losses of others. Participants must be convinced that the collaboration and cooperation in improvement of the present system represents the best chance for the future. This requires that "Educational organization, however large and complex... be structured so that planning and management is rational for all members." By "rational" Davis meant that each member (or actor) will see the system as organized to satisfy his needs. This will require information about the goals, attitudes, values, style of each member.

The Davis proposal requires employment of five categories of information. These are target and flow information, program response information, program response requirements and costs, revenue and financial source information, and basic student/parent/teacher information. The first four categories of information can be described at four levels of analysis: national, regional, district/local, and institutional. In general, data for the next highest level are aggregated up from a given level. For example, family preferences for an institution are aggregated at the district level in community policies. These, in turn, can be expressed at the regional and national levels. The categories are, as Davis noted, essentially conventional, but it is not clear how one aggregates goals or attitudes when they are contradictory. Presumably one would use a "majority rule" principle.

The use of information from students and their parents as the source of program targets is unique in proposals for planning national educational systems. One could compare demands on the educational system accumulated across students and their parents with the demands on the system using a more conventional manpower analysis (data for which would

come from Target and Flow sources). But the "core activity of education is individual learning," Davis insisted, so that the problem of planning is to determine what can be done at the national level that will best meet goals accumulated across individuals, rather than to impose on individuals targets based on system needs.

The difficulty is that we do not yet have the planning models to accomplish this. Davis suggested that models for evaluating the teaching/learning process are well-developed and yield reasonably good data, good enough for the kinds of decisions that have to be made for the system. Similarly, considerable progress has been made in the development of models for planning at the national system level. The problem is in structuring and feeding national system models using information from research on teaching and learning. The way to overcome this problem, Davis noted, is by not seeking to develop highly precise models for policy formulation, but rather to rely on "simple decision models," with less attention to the technical excellence of the model and more to the involvement of all levels in the decision-making process.

Mitroff and Pondy (1974) have described a Delphi process in which "experts" with various perspectives on the problem share their information, and their perspectives, to reach a problem definition and solution. This may be one way to implement participatory planning. But as Davis noted, there will be resistance to the notion of allowing everyone to participate in the process of decision-making. In general, Delphi techniques work best when there already is agreement on fundamental assumptions, which in turn suggests that participatory planning will be limited to those issues about which there is little disagreement.

The information required for the Davis' proposal differs in content from the schemes presented earlier in several other important ways.

First, in the Target and Flow category, this proposal recommends taking into account non-economic, or social/cultural policies important for determining what education should be producing. As mentioned earlier, specific attention is given to the regional distribution of economic incentives, in the form of employment policies, support services, and scholarships. The Program Response section calls for much more detailed information than do other schemes. In addition to academic achievement information, this proposal requires measures of student gains in attitudes, values, non-curricular knowledge, and other non-conventional measures of the outputs of schooling.

The level of detail for Program/Resources requirements also is much higher, with specific attention to the structure and process of the teaching/learning process. This description is required not only for schools but also for education and training programs that take place out of school, including factories, cultural activities and mass media. Davis' list of desirable information on financing is the most complete of any set. The student/parent/teacher information base is a unique collection of data for use by planners.<sup>7</sup>

Finally, despite Davis' equation of planning with management and his concern for spreading that activity through the organization, the proposal does not call for information needed to link diagnosis and

---

<sup>7</sup>It should be noted that this is the only instance in any of the proposals in which participants in the system have any chance to determine what is "information." In all other cases, in this Davis conception as in others, the definitions of what is "informing" is provided by the conceiver. Churchman (1971) has noted that inquiring systems with this characteristic are in fact making the subject slave to the fact. He suggests alternative inquiring systems in which the subject (e.g., Ministry officials, teachers, parents and students) participate in determining what will be considered fact or information.

prescription with implementation. The accompanying text discusses the need to look at organizational structure and competence, and to link that with the political and cultural environment, but these requirements are not translated into information needs.

## 2.7 USAID, 1974

The model described by AIDTO Circular A-703 (see Table 7) is reasonably explicit, more so than the previous proposals, in terms of the criteria to be applied in evaluating the educational system, and in specification of causes of system failure to meet objectives. If the other proposals could be characterized as listing data that once collected could be fed into a waiting off-line model, this scheme is itself an operational model that tells what data to collect and how to process them to make decisions about action on the system.

In this case, the system is seen as determined, principally by the number and quality of teachers, administrators and instructional materials. Decisions on those variables can be influenced directly by external decision-makers. Performance of the system is to be evaluated in three ways: the fit between the outputs of the system and the needs/requirements of other sectors (relevance), equity, and the efficiency of operation of the system. By altering inputs the planner can bring the system into line with the external demands made upon it. These alterations involve principally changes in the number of kinds of outputs to be produced by the system.

The conception is most clear with respect to the steps of Detection and Diagnosis. It is vague with respect to Prescription, and ignores problems of Implementation. Much more than the other proposals, this USAID scheme lays out the criteria to be used in assessing whether

action is required in the educational system. Data on objectives are to be gathered from public statements of officials (both within Ministry and other sectors), and an evaluation of "real" goals is to be made from observation of effort. Performance of the system is defined along dimensions that allow for an evaluation in terms of criteria of equity (most important) and efficiency. Client populations are specifically defined as groups, by income level, geographic location, and sex. (But these are passive groups whose interests are defined for, not by, them.) The equity of the system is evaluated not only in terms of distribution of educational inputs, but also in terms of educational outputs (learning) and outcomes (employment).

The proposal also provides a means for a detailed diagnosis of the problems of the system. Again, assessments are made in terms of explicit criteria: production and utilization of educational outputs. It should be noted that the information required does not involve an up-close examination of the operation of the educational system (as found in Davis' two proposals), but instead can be obtained through educational statistics. As a consequence, not included among possible causes of system failure would be administrative competency; organizational pattern; student learning patterns; or interactions of the educational system with other social structures. Prescriptions of solutions, therefore, have to be stated principally in terms of amount of effort and expected outcomes. In other words, educational programs (and teachers and students) are treated as black boxes.

The lack of attention to problems of implementation is consistent with the kind of Detection information gathered. This scheme is useful for telling an outsider whether an educational system is operating well (given certain criteria such as those listed in D.4.e ), and what parts

are working well, but it is not particularly useful for deciding where and how to intervene in the system (other than putting more or less effort into this or that program).

## 2.8 USAID, 1976

The Agency's next venture in the field of definition of information requirements came with the publication of the "Nine Questions" to be used in the development and evaluation of education proposals.

The Questions were as follows:

1. Analysis and characterization of the target population.
2. Articulation of target population linkages to the development process.
3. Basic learning needs of the target population.
4. Descriptive profile of learning systems.
5. Analysis and characterization of education and human resources development problems.
6. Specification of critical constraints, actionable alternatives, and priorities.
7. Review of country goals, plans, and programs.
8. Other donor activities.
9. AID strategy for effective intervention (AIDTO Circular A-90, February 18, 1976).

With this approach AID sought to specify the information necessary to design education programs that would meet the needs of the "poor majority" in a country. Table 8 is one version of the indicators, variables and procedures necessary to answer the Questions.

Once again, the purpose is to provide information useful for AID planners. For that reason, perhaps, the proposal calls for little information about objectives of policy makers (see question 7), but instead provides a detailed list of criteria (generated by USAID) which could be used to evaluate the existing education and training system (question 1). One can: arbitrarily assign desirable values for each of the criteria listed; use existing country levels as a base and call for marginal improvements; apply standards from wealthier countries; and compare rich and poor groups within the country. The proposal does not indicate the relative importance of the various criteria.

Because this proposed scheme is so complex, it is risky to describe the conception of education and society on which it is based. The model seems to be something like this. Education is one of several (others are health, housing) inputs that contribute to increase the productivity of an individual and hence his share in total economic product of a country (which is at the same time increased as all individuals become more productive). But the poor majority's share is also conditioned by social and economic structures that affect the capacity of the individual (or the production unit to which he belongs) to control the use of his share of the product and services provided by the State. Education has no direct impact on these economic structures but it may increase an individual/group's political power through organization. (How this occurs is unclear.) Individuals in society are (apparently) assumed to pursue maximization of their share of goods and services and therefore are responsive to educational and other programs designed to increase their ability to share. The model only hints at exactly how it is that education enables persons to increase productivity. The

The planner can treat curriculum and teaching as black boxes that vary in quantity and name. "Quality" of education or learning is not a salient variable in the model, or rather the model is not clear on what is to be considered good quality.

The indicators of system response to need are taken from conventional wisdom (of developed country planners) about critical variables (such as GDP, or percentages of population enrolled), and from social science research results on variables that define social stratification levels (such as presence of sanitary facilities, crowding index) related to school achievement. There is some attention to participation in formal political structures, but no information on relationships between powerful and powerless groups in the society.

The proposal assumes that the way to meet the needs of the poor majority is to provide them what they are lacking in comparison with the population as a whole. Basic learning needs are defined (in question 3) in terms of the kinds of educational inputs that should provide the poor with the levels of nutrition and health, and knowledge of family planning, that characterize the criterion group (e.g., the bourgeoisie, the capitalist class). The poor need to be provided, it is assumed, the kinds and amounts of education and training that will enable them to reach the levels and types of production and consumption of the criterion group. They are said to need social development education, and training in social competencies that will match them with that group in literacy, educational attainment, language, political participation, and membership in social organizations.

In contrast with previous schemes, this one calls for a detailed description of the operation of the education and training system, including information flow and decision making, in addition to more

conventional questions on flow of students, supply of teachers, costs. Question 4 also includes a review of constraints affecting system performance. This kind of information permits a diagnosis of system problems in terms other than lack of effort (or production and utilization as in USAID 1974, Table 7). Included in the list of constraints to be considered are the governmental and political process, and social rigidities: these concepts are not elaborated.

The prescription of solutions to the problems of the system in meeting the learning needs of the poor majority follows from a detailed review of constraints. These constraints are listed in question 6 as internal and external in origin. Internal constraints include both structure and organization of the education and training system, as well as curriculum and resources. External constraints include, among other things, the presence of social and political organizations and ideologies that could impede the implementation of a program. Question 6 also includes a list of alternative programs for meeting the identified gaps between learning needs and the product of the system.

Some aspects of this proposal should be attractive to developing country planners conscious of the complex and competitive political environment in which decisions are made. Of all the conceptions of information requirements reviewed, this one comes closest to making explicit a model of planning and decision-making in which the "irrational criteria" of politicians are taken seriously and entered into the calculus of resource allocation. Enthusiasm for the scheme should be tempered, however, by two considerations. Relatively less important, but serious, is the amount of work that must be done in making explicit who are the actors and what are their relationships. More important is the need to recognize where this conception of planning sites the "planner" or

person collecting and using the information. If the planner is located within the system, how does he go about choosing among alternative definitions of the poor majority and their needs? It has not been uncommon for elite groups to define the needs of the poor majority in terms (e.g., need for increased "culture") that do nothing to redress conditions of serious economic and social injustice. It should be remembered that this proposal was prepared for decision-makers who sit outside the system (i.e., outside the society for which decisions will be made) and who seek to impose their values on that system. Apart from the moral implications of that posture, one might recall the earlier presentation of reasons offered by Davis (1972) for the many failures of educational planning. We will return to that issue in the concluding remarks of this paper.

## 2.9 World Bank, 1976

Table 9 lists another World Bank's conception of information requirements. The scheme was designed for the Bank's appraisal of education projects under consideration for financing. Four major principles (listed under G) are to be used in evaluating projects; these can also be taken as criteria to be used in detecting whether there is need for action. In addition to the four principles, the scheme provides a series of indicators that can be used to assess the gap between current performance of the system and that desired. This is a mixed bag of criteria that could well provide contradictory recommendations for action. The proposal makes sense, though, if one begins with a manpower analysis, determines the need for trained and skilled workers at various levels, and then compares demand with projected supply. The Bank uses a set of computerized mathematical models to perform these calculations.

It also employs a model that determines whether proposed programs are likely to result in increased equity (of educational inputs, throughput, output).

Detailed information on the operation of the educational system is contained in other Bank information schemes (such as the Sector Study proposal to be reviewed next), hence the Project Appraisal scheme does not include all relevant information about system operation. Even so, the list is long. Its unique features include a detailed examination of the authority structure of the Ministry of Education and other units responsible for education and training. Specific attention is paid to the linkages between the various organizations, i.e., to the functioning of the education and training system in administrative terms.

The proposal also calls for highly detailed information on the present and projected infrastructure of the school system, that is, teachers, facilities and materials, as well as on present and projected enrollments. Unlike any of the proposals reviewed to this point, this one reviews developments within the system in terms of indigenous research and development activities, and calls for a summary of proposed reforms.

As with the Project Appraisal scheme developed in 1969 (Table 5), this approach is heavy on information about problems of implementation. While the previous scheme focused exclusively on physical plans, the 1976 version also examines problems of implementation of educational "software", consistent with changes in Bank policy with regards to loans. Other differences between the 1976 and 1969 conceptions of information requirements for Project Appraisal are as follows.

There is fine detail on coordination between the various educational agencies. Education is viewed, if not as an open system, at

east as a highly complex organization involving more than the Ministry of Education. Attention is given to problems of integration within the Ministry as well. There is a more detailed examination of the structure of the Ministry of Education, with specific evaluation of managerial competence in the divisions. The planning unit is formally identified as a central agency. Although this kind of information comes close to describing the transactional context of decision-making within the education and training system, the underlying model assumes no competing interests, only a common problem. Furthermore, the implicit assumption that the Bank can identify the problem as well as can the Ministry of Education and other agencies.

In the more recent scheme, enrollments are categorized not only by age, sex and region, but also by race, religion, and socio-economic status, indicating an increased awareness of social divisions within countries. More attention is given now than previously to problems of internal efficiency, and to immediate outputs of education. At the same time there is more concern with matching the production of students with employment opportunities.

#### 0 World Bank, 1977

The Bank ordinarily requires execution of a sector study prior to development and appraisal of project proposals. The information requirements for education sector studies are described in Table 10

set of requirements. In an accompanying memorandum the Bank does stipulate that the sector study should be done by the country itself (and not by expatriates) except under special circumstances. But the proposal reflects the Bank's perspective on the nature of development

and education's contribution to it. The aims and objectives listed in part A of the table flow directly from the Bank's objective of improving education and training systems "to meet economic and other development needs."<sup>8</sup>

Problems of the education and training system are diagnosed in the conventional manner, that is, in terms of the fit between education's outputs and outcomes, and the needs of other sectors of society. The scheme calls for data on the correlation between the education program and the manpower program, between education and social, environmental and cultural demands. No indicators are specified for these variables. Country planners carrying out the sector study can choose to develop their own indicators, or can research what the Bank would prefer them to use.

Prescription of solutions to problems is handled as in previous schemes, by listing possible alternative programs that can then be evaluated in terms of various outcome criteria. The Bank's criteria, in addition to availability of resources, administrative competence, and planned reform, include equitable distribution of education and training services, with special regard to the needs of urban and rural poor. The supporting text for the proposal (not included here) provides additional information requirements in the form of a series of evaluative questions. For example:

1. How do available education plans and projected enrollments and development of staff and physical facilities relate to

---

<sup>8</sup>This is surely an unexceptionable objective, but not the only one a country could pursue. It is also reasonable that a lending agency should impose some criteria to insure repayment of its loans. The point is that how a country defines development would, in this instance, seem of lesser importance than the country's ability to define educational objectives that match those of the Bank.

- economic plans, population estimates and future needs?
2. Is the current and future supply and distribution of staff, physical facilities and learning materials appropriate in quality and sufficient in quantity?
  3. Are teaching staff and school facilities being used for any relevant non-educational activities?
  4. Has the "open classroom" concept been discussed?
  5. Is there local production of textbooks?

The subjective judgments required by some of these questions do not seem to fit into a formal model of the educational system although they clearly are motivated by a perception of what a good education and training system looks like and does.

A unique feature of this scheme is the list of special studies that can be done prior to the identification of specific projects for Bank financing. These studies run the gamut from detection to implementation issues. The questions with respect to implementation (Section D.2.f) deal with structure and process, but are without analysis of obstacles or resistance to change. There is some attention to involvement of people outside the Ministry of Education and other education and training systems in decision-making, but the kinds of information specified are limited.

### 3.0 Comparison of USAID and World Bank Conceptions

There are several important differences between the World Bank's conception of information requirements and those of USAID. These stem principally from the purpose for which information is collected. In general, while USAID focuses more on the social significance of a project (loan, proposed change) in terms of how it meets the criteria of USAID's Congressional mandate, the Bank's emphasis is on cost

effectiveness, on the value of investment. These are relative rather than absolute differences, but they show up in various ways. While USAID appears to be asking, "Are we giving money to a cause we believe in?" the Bank's information requirements are consistent with the question, "Will the loan be well-spent?" The Bank asks for more information dealing with internal efficiency, while USAID is more concerned with external effectiveness (relevance). USAID gives more explicit attention to disadvantaged populations, while the Bank collects more information on system operation. In general USAID seeks disaggregated data that can be used to show inequities in the distribution of educational services and outputs, while the Bank's data tend to be collected at a national level.

As a result, USAID's data set would be more useful for planners interested in questioning some aspects of the structure of the education and training system, while the Bank's data would be most useful for persons looking for good investments (i.e., known risks), that in turn are likely to be extensions of existing efforts. USAID's interests seem to be ahistorical; the proposed schemes ignore what efforts are currently being made by the country, or what currents of reform are swirling about.

USAID's recommendations for data to be collected for implementation issues are contained in AIDTO Circular A-241 of April 23, 1975. That document describes a "Social Soundness Analysis", which asks three major questions of a project:

1. The compatibility of the project with the socio-cultural environment in which it is to be introduced.
2. The likelihood that the new practices or institutions introduced among the initial project target population will

be diffused among other groups; and

3. The social impact or distribution of benefits and burdens among different groups.

The assumption behind the first question appears to be that the principal obstacles to change are found in the target population itself, that is, in the rural poor or the poor majority. For that reason the Analysis recommends that their values, beliefs, social structure, and organization be taken into account in planning a project. (The Circular asks: "Who lives where? How are they organized? Allocation of time? Motivation?").

The assumption is, of course, questionable. A planner and USAID would be better advised to focus on the values, beliefs, etc., of the ruling class, as it is their organization and motivation that has most effect on the environment of the poor. One could argue that only with changes in (or of) the ruling class will new practices be diffused and social benefits more equitably distributed.

The World Bank has a different conception of obstacles to change. The Bank's schemes ignore socio-political realities in favor of detailed study of the government bureaucracy. The Bank has a long list of data to be collected on the decision-making structure of the Ministry of Education and other education and training agencies, the linkages between them, their resource base, their administrative capacity, and the administrative issues to be handled in specific projects. This emphasis is especially important given the Bank's stricture that sector studies should be done by national officials, while USAID merely calls for involvement of national officials where possible (and in fact often relies on external consultants to actually gather the data).

Both USAID and the World Bank assume a homogeneity of perspectives about the basic functions of education and the goals of development among government officials and among target populations. They rely on straightforward (and simple) techniques for collecting data on objectives (from official documents and statistics). The proposals do not call for information that would diagnose problems of the systems in terms of motives of powerful actors (persons or groups or institutions) in conflict within the system. Diagnosis is in terms of how existing programs fail to measure up to needs.

Information required for the prescription of alternatives comes down to determining what the system can do more or less of, rather than how program alternatives would fit with the perspectives of one or more powerful groups. One might want to qualify that statement. The USAID information scheme based on the "Nine Questions" does provide information on constraints, defined as motives and abilities and competencies of various groups and AID Circular A-703 does refer to non-educational bottlenecks. The Bank, in turn, asks in its narrative accompanying the Sector Study schema, whether there "Are difficult relationships between politicians, planners, parents?" But apart from this the schemes do not provide information that would allow choice among alternative programs on the basis of non-technical criteria (such as political acceptability). In general, they conceive of the education and training system as essentially closed (or with a relatively impermeable boundary), not influenced by decisions and actions in other sectors.

Both sets of proposals are short on providing information about previous reform efforts and their outcomes, although the Bank does generate data on current reform movements. Both sets of proposals

provide data that could be used to evaluate proposed solutions to existing patterns, where outputs are quantifiable and inputs well-identified.

#### 4.0 Summary

With the exception of that presented by Davis in 1972, each of the ten information schemes reviewed begins with a single conceptual model of the education and training system, and detects and diagnoses problems on the basis of that conceptual model. There is no consideration of possible alternative models. Davis (1972), on the other hand, presents a framework for using information that would allow multiple perspectives of the educational system, by administrators, parents, students, and other groups. His inquiring system, however, assumes agreement about the basic nature and purpose of education; the alternatives that might arise from the several perspectives are meant to be complementary and would be solved with that basic consensus in mind. In other words, all of the conceptions of information requirements reviewed in this paper assume a world without conflict, with agreement on basic values for development and on education's function in reaching those values.

Whose values? Since 1964 the direction of change in information schemes has been toward clearer specification of the objectives of the agency requesting the information. While early proposals implicitly assumed that the objectives of education were known and shared by all, the present schemes lay out explicitly the values to be used in assessing educational systems and determining how they should be changed. Within this clarification of objectives the trend has been from assuming that education contributes to national development by increasing productivity, to assuming that education is one of several mechanisms for reducing

inequities (in income and access to other social services) between different social groups.

In practical terms, this redefinition of the role of education means that whereas information previously was required only on the national level using a few variables, now it is required in disaggregated form on a relatively long list of indicators. Planners in countries with stable economies and educational systems, unconcerned about problems of equity (either because there are few inequities, or there is low social concern) would for most planning problems find the earlier schemas fully adequate. In any case, however, planners may want to question whether the available evidence supports either assumption, that education increases productivity or can reduce inequity.

None of the proposals (for reasons that will be discussed at the end of this paper) call for much of the kind of information that should be collected in the detection phase of the planning process. The more complete lists are found in the AID Nine Questions Basic Schema (Table 8, question 2), or the World Bank's 1976 Project Appraisal Requirements (Table 9, section G). Of the two, the USAID system provides more explicit descriptions of indicators.

Any of the recent schemes provide detailed information useful in diagnosing problems of the education and training system (within the limitations described above with respect to political objectives). The schemes developed by the World Bank, and by Davis (1972) are more complete with respect to detailed descriptions of system operation, while the AID schemes provide a useful listing of information about constraints in the present system.

Both the AID Nine Question Schema and the World Bank Sector Study

Guidelines provide suggestions as to alternative actions that can be taken, and provide suggestions as to the kind of information useful in evaluating these alternatives. As noted above, these alternatives are all consistent with a given set of assumptions about the nature and purpose of the education and training system. Finally, the World Bank lists are the most complete in terms of suggesting information useful in planning the implementation of educational projects. Once again, the information requirements are posited on an assumption that the major (or only) obstacles to change are technical, rather than political or ideological.

#### 5.0 Conclusion

It bears repeating that comments on the limitations of these conceptions of information requirements are meant not to highlight deficiencies, but rather to specify the ways in which these approaches to the problem of planning can be used most effectively. At the moment there is no single scheme for data collection and analysis that is appropriate for all four phases of the process of educational planning. Planners and administrators need first to identify what their needs are, and then to select the scheme (or schemes) best suited to their particular situation.

All of the ten proposals reviewed in this paper were devised by experts from developed countries. Although some of those experts have had extensive experience in developing countries (and may even understand problems of development in those countries better than their own citizens) it seems fair to say that all the proposals reflect the view of a planner on the outside of the system looking in. This is obvious in the case of the USAID and World Bank schemes --

in fact these are systems for planning the international donor's actions, rather than for planning the actions of the system receiving external assistance. But the proposals of Brodin, Chesswas, and Davis also contain biases or perspectives that do not always match those of planners working within their own country.

All the conceptions propose a consensus model of decision-making for education. Even where the political dimension is acknowledged, the underlying assumption seems to be that there is agreement among all citizens, and certainly among the critical decision-makers or groups in the country, about the basic objectives for and characteristics of the educational process. None of the proposals call for information to be used by the planner about how the interests of various groups in the society will be affected by proposals for change, the relative power of these groups, or the values they hold that could be used to insure their support of various proposals.

The schemes would, therefore, be less useful in countries characterized by pluralist (or class-based) politics, and more useful in situations either where there is consensus among all the important power groups, or where the government is so powerful that no one can oppose its decisions. In few countries is there such consensus or such a lopsided balance of power that a government can afford to assume that all important groups in society will support its recommendations for educational action. Planning that does not take into account political conflict variables is likely to result in paper plans that are never implemented, or that are implemented only by the use of repression and coercion. Planning that cannot take into account the struggle between political actors is limited to consideration of alternatives that require no (perceived) change in fundamental

dimensions of the system. Radical alternatives for change cannot be considered without a political analysis: the ten proposals reviewed do not suggest the kind of information required for that analysis, and how it could be used by a planner.

The proposals also make assumptions about education and training that may not be justified. All the schemes (with the possible exception of the AID Nine Questions approach) assume that educated and trained people are fully utilized by society; that education and training change peoples' knowledge, attitudes and values in known and measurable ways; that the inputs required to produce desired changes in knowledge, attitudes and value exist and can be identified; and that the process of model-solving is the most effective method of planning to mobilize and apply those inputs. Each of those assumptions is questionable in the light of our experiences during the past 15 years.

How would the information requirements for a national planner differ from those proposed in these ten schemes? A more appropriate question might be, what information, in addition to that provided by these schemes, would be helpful to a planner in a developing country? That question can be answered by a study of the role and position of the national planner.<sup>9</sup> Because they are linked into a conflictual political system, national (as opposed to expatriate) planners more often seek data useful for planning in the detection and implementation phases. They are more likely to use information that allows them to

---

<sup>9</sup>See, in this series, "Integrating Planning and Implementation: A Transactional Approach," and "The Evolution of Educational Planning in El Salvador: A Case Study" for theory and practice of national planners.

evaluate the complex forces and interests that wrestle within the Ministry of Education and without. They are much more concerned with problems of implementation that necessarily involve issues of power and authority. They give more attention to "who wants what" and less to abstractions such as the needs of "the system" or "the society". They are more likely to seek information that they then use to justify their position, rather than to define what it should be; to specify boundaries for action rather than to give precise solutions; to use data to mobilize rather than to program. There is more tolerance of imprecision, reliability is not a central issue, hunches are more frequently taken seriously. Not only are requirements for precision on a given variable lower, but there may be fewer variables. The general attitude with respect to research is that the planner is not studying a system, but rather helping to create one. Their approach is closer to Quinn's alternative paradigm than to the dominant paradigm of the developed country social scientist.

This description is itself paradigmatic, a perspective on the process of educational planning process. Which paradigm works best will depend no doubt on the particular situation in which one is working. Planning begins with the analysis of information about some reality.

References

- Anderson, C. Arnold and Mary Jean Bowman, "Educational Planning (Part II)", 1967.
- Beeby, Clarence E., Qualitative Aspects of Educational Planning, Paris: UNESCO/IIEP, 1969.
- Bereday, George and Joseph Lauwerys (eds.), Educational Planning: The World Year Book of Education, 1967. New York: Harcourt, Brace and World, 1967.
- Brolin, K. G., "Statistics needed for educational planning." In UNESCO (1964), pp. 223-242.
- Chesswas, J. D., "The Basic Data Needed for Educational Planning", Bereday and Lauwerys (eds.) 1967, pp. 73-84.
- Chesswas, J. D., Methodologies of Educational Planning for Developing Countries. Paris: UNESCO/IIEP, 1969,
- Churchman, C. W., The Design of Inquiring Systems, New York: Basic Books, 1971.
- Coleman, James C., et al., Equality of Educational Opportunity. Washington, D. C.: HEW, 1966.
- Cornish, Richard D., et al., Community Profile: A Comprehensive Base for Educational Planning, San Jose, California: Santa Clara County Office of Education, March 1975. (ERIC ED104008)
- Correa, Hector, Quantitative Methods of Educational Planning, Scranton, Pa.: International Textbook, 1969.
- Davis, Russell G., Planning Human Resource Development. Chicago: Rand McNally, 1966.
- de Escondrillas, F., Esquema para el Análisis y Diagnóstico de Un Servicio Educativo, Santiago (Chile): Instituto Latinoamericano de Planificación Económico y Social, 1963.
- Durstine, Richard M., Exemplos no Ambito Nacional de Analises Quantitativas Uteis Para O Planejamento do Sistema Educacional, Brasília: Centro Nacional de Recursos Humanos, 1974.
- Fuller, William P., A Review of Statistics for Planning Education in Thailand, Bangkok: National Education Council, 1971.
- Harbison, Frederick H. and Charles Myers, Education, Manpower and Economic Growth, New York: McGraw, 1964.

- Higgins, K. Ronald and M. J. Conrad, A Data System for Comprehensive Planning in Education, Columbus, Ohio: Council of Educational Facility Planners, September 1973. (ERIC ED083691)
- Khare, J. P., Statistics for Educational Planners, New Delhi: Asian Institute for Educational Planning and Administration, May 1965.
- Mitroff, Ian I. and Louis R. Pondy, "On the Organization of Inquiry: A Comparison of Some Radically Different Approaches to Policy Analysis," in Public Administration Review, Vol. 34 (September/October), 1974, pp. 471-479.
- Moir, Gary M. and Ronald E. Moir, Information-Decision Systems in Education, Itasca, Ill.: Peacock, 1970.
- OECD, Methods and Statistical Needs for Educational Planning. Paris, 1967.
- Patton, Michael Q., Alternative Evaluation Research Paradigm. University of North Dakota, North Dakota Study Group on Evaluation, 1975.
- Stolper, Wolfgang, Planning without Facts: Lessons in Resource Allocation from Nigeria's Development, Cambridge, Harvard University Press, 1966.
- UNESCO, Economic and Social Aspects of Educational Planning, Paris: 1964.
- UNESCO, Manual of Educational Statistics, Paris: 1961.
- Webster, Maureen, Educational Planning and Policy: An International Bibliography, Syracuse: Educational Policy Research Center, Syracuse University, June 1969.
- Williams, Peter, "Education in Developing Countries: A View from Mt. Olympus," Prospects, V:4 (December), 1975.

DEVELOPMENT DISCUSSION PAPERS

- \*1. Donald R. Snodgrass: "Growth and Utilization of Malaysian Labor Supply." The Philippine Economic Journal, 15:273-313, 1976.
2. Donald R. Snodgrass: "Trends & Patterns in Malaysian Income Distribution, 1957-70." In: Readings on the Malaysian Economy. Oxford in Asia Readings Series, compiled by David Lim, New York, Oxford University Press, 1975.
- \*3. Malcolm Gillis & Charles E. McLure, Jr.: "The Incidence of World Taxes on Natural Resources, With Special Reference to Bauxite." The American Economic Review, 65:389-396, May 1975.
4. Raymond Vernon: "Multinational Enterprises in Developing Countries: An Analysis of National Goals and National Policies." June 1975.
- \*5. Michael Roemer: "Planning by 'Revealed Preference': An Improvement upon the Traditional Method." World Development, 4:774-783, 1976.
6. Leroy P. Jones: "The Measurement of Hirschmanian Linkages: Comment." Quarterly Journal of Economics, 90:323-333, 1976.
- \*7. Michael Roemer, Gene M. Tidrick & David Williams: "The Range of Strategic Choice in Tanzanian Industry." Journal of Development Economics, 3:257-275, September 1976.
8. Donald R. Snodgrass: "Population Programs after Bucharest: Some Implications for Development Planning." Presented at the Annual Conference of the International Committee for Management of Population Programs, Mexico City, July 1975.
9. David C. Korten: "Population Programs in the Post-Bucharest Era: Toward a Third Pathway." Presented at the Annual Conference of the International Committee for Management of Population Programs, Mexico City, July 1975. (Revised December 1975).

---

To order: Send U.S. \$2.00 each paper to:

Publications Office,  
Harvard Institute for International Development,  
1737 Cambridge Street, Room 616,  
Cambridge, Mass. 02138, U.S.A.

(Includes surface mail; air mail rates on request).  
Please order by number only.

Make checks payable to Harvard University. Overseas orders should be paid by International Money Order; we cannot accept coupons of any kind.

\* = No longer available.

10. David C. Korten: "Integrated Approaches to Family Planning Services Delivery." Commissioned by the U.N. July 1975. (Revised December 1975).
11. Edmar L. Bacha: "On Some Contributions to the Brazilian Income Distribution Debate - I." February 1976.
12. Edmar L. Bacha: "Issues and Evidence on Recent Brazilian Economic Growth." World Development, 5:47-67, 1977.
13. Joseph J. Stern: "Growth, Redistribution and Resource Use." In: Basic Needs & National Employment Strategies. Vol. I of Background Papers for the World Employment Conference, Geneva, International Labour Organization, 1976.
- \*14. Joseph J. Stern: "The Employment Impact of Industrial Projects. A Preliminary Report." April 1976. (superseded by DDP. No. 20).
15. J. W. Thomas, S. J. Burki, D. G. Davies, and R. H. Hook: "Public Works Programs in Developing Countries: A Comparative Analysis." May 1976. Also pub. as World Bank Staff Working Paper No. 224, February 1976.
- \*16. James E. Kocher: "Socioeconomic Development and Fertility Change in Rural Africa." Food Research Institute Studies, 16:63-75, 1977.
17. James E. Kocher: "Tanzania: Population Projections and Primary Education, Rural Health and Water Supply Goals." December 1976.
18. Victor Jorge Elias: "Sources of Economic Growth in Latin American Countries." Presented to the 4th World Congress of Engineers & Architects in Israel: Dialogue in Development - Concepts and Actions, Tel Aviv, Israel, December 1976.
19. Edmar L. Bacha: "From Prebisch-Singer to Emmanuel: The Simple Analytics of Unequal Exchange." January 1977.

---

To order: Send U.S. \$2.00 each paper to:

Publications Office,  
Harvard Institute for International Development,  
1737 Cambridge Street, Room 616,  
Cambridge, Mass. 02138, U.S.A.

(Includes surface mail; air mail rates on request).

Make checks payable to Harvard University. Overseas orders should be paid by International Money Order; we cannot accept coupons of any kind. Please order by number only.

\* = No longer available.

20. Joseph J. Stern: "The Employment Impact of Industrial Investment. A Preliminary Report." January 1977. (supersedes DDP. No. 14). Also published as a World Bank Staff Working Paper, No. 255, June 1977.
21. Michael Roemer: "Resource-Based Industrialization in the Developing Countries. A Survey of the Literature." January 1977.
22. Donald P. Warwick: "A Framework for the Analysis of Population Policy." January 1977.
23. Donald R. Snodgrass: "Education & Economic Inequality in South Korea." February 1977.
24. David C. Korten & Frances F. Korten: "Strategy, Leadership, and Context in Family Planning: A Three Country Comparison." April 1977.
25. Malcolm Gillis & Charles E. McLure: "The 1974 Colombian Tax Reform & Income Distribution." Pub. as: "Taxation and Income Distribution: The Colombian Tax Reform of 1974." Journal of Development Economics, 5:233-258, September 1978.
- \*26. Malcolm Gillis: "Taxation, Mining & Public Ownership." April 1977. In: Nonrenewable Resource Taxation in the Western States, Tucson, University of Arizona School of Mines, May 1977.
27. Malcolm Gillis: "Efficiency in State Enterprises: Selected Cases in Mining from Asia & Latin America." April 1977.
28. Glenn P. Jenkins: "Theory & Estimation of the Social Cost of Foreign Exchange Using a General Equilibrium Model With Distortions in All Markets." May 1977.
29. Edmar L. Bacha: "The Kuznets Curve and Beyond: Growth and Changes in Inequalities." June 1977.
30. James E. Kocher: "A Bibliography on Rural Development in Tanzania." June 1977.

---

To order: Send U.S. \$2.00 each paper to:

(includes surface mail;  
air mail rates on request)

Publications Office,  
Harvard Institute for International Development,  
1737 Cambridge Street, Room 616,  
Cambridge, Mass. 02138, U.S.A.

Please order by number only.  
Make checks payable to Harvard University. Overseas orders should be paid by International Money Order; we cannot accept coupons of any kind.

\* = No longer available.

31. Joseph J. Stern & Jeffrey D. Lewis: "Employment Patterns & Income Growth." June 1977.
32. Jennifer Sharpley: "Intersectoral Capital Flows: Evidence from Kenya." August 1977.
33. Edmar L. Bacha: "Industrialization and the Agricultural Sector." Prepared for United Nations Industrial Development Organisation, November 1977.
- \* 34. Edmar Bacha and Lance Taylor: "Brazilian Income Distribution in the 1960's: 'Facts', Model Results and the Controversy." Presented at the World Bank-sponsored Workshop on Analysis of Distributional Issues in Development Planning, Bellagio, Italy, 1977. The Journal of Development Studies, 14:271-297, April 1978.
35. Richard H. Goldman and Lyn Squire: "Technical Change, Labor Use and Income Distribution in the Muda Irrigation Project." January 1978.
36. Michael Roemer & Donald P. Warwick: "Implementing National Fisheries Plans." Prepared for workshop on Fishery Development Planning & Management, February 1978, Lomé, Togo.
37. Michael Roemer: "Dependence and Industrialization Strategies." February 1978.
38. Donald R. Snodgrass: "Summary Evaluation of Policies Used to Promote Bumiputra Participation in the Modern Sector in Malaysia." February 1978.

---

To order: Send US \$2.00 each paper to: (includes surface mail;  
air mail rates on request).

Publications Office,  
Harvard Institute for International Development,  
1737 Cambridge Street, Room 616,  
Cambridge, Massachusetts, 02138, U.S.A.

Please order by number only.

Checks should be made payable to Harvard University. Overseas orders should be paid by International Money Order; we cannot accept coupons of any kind.

\* = No longer available.

39. Malcolm Gillis: "Multinational Corporations and a Liberal International Economic Order: Some Overlooked Considerations." May 1978.
40. Graciela Chichilnisky: "Basic Goods, The Effects of Aid and the International Economic Order." June 1978.
41. Graciela Chichilnisky: "Terms of Trade and Domestic Distribution: Export-Led Growth with Abundant Labor." July 1978.
42. Graciela Chichilnisky and Sam Cole: "Growth of the North and Growth of the South: Some Results on Export Led Policies." September 1978.
43. Malcolm McPherson: "Wage-Leadership and Zambia's Mining Sector--Some Evidence." October 1978.
44. John Cohen: "Land Tenure and Rural Development in Africa." October 1978.
45. Glenn P. Jenkins: "Inflation and Cost-Benefit Analysis." September 1978.
46. Glenn P. Jenkins: "Performance Evaluation and Public Sector Enterprises." November 1978.
47. Glenn P. Jenkins: "An Operational Approach to the Performance of Public Sector Enterprises." November 1978.
48. Glenn P. Jenkins and Claude Montmarquette: "Estimating the Private and Social Opportunity Cost of Displaced Workers." November 1978.
49. Donald R. Snodgrass: "The Integration of Population Policy into Development Planning: A Progress Report." December 1978.
50. Edward S. Mason: "Corruption and Development." December 1978.

---

To Order: Send U.S. \$2.00 each paper to:

Publications Office,  
Harvard Institute for International Development,  
1737 Cambridge Street, Room 616,  
Cambridge, Massachusetts, 02138, U.S.A.

(Includes surface mail; air mail rates on request).  
Please order by number only.

Checks should be made payable to Harvard University. Overseas Orders should be paid by International Money Order; we cannot accept coupons of any kind.

51. Michael Roemer: "Economic Development: A Goals-Oriented Synopsis of the Field." January 1979.
52. John M. Cohen and David B. Lewis: "Rural Development in the Yemen Arab Republic: Strategy Issues in a Capital Surplus Labor Short Economy." February 1979.
53. Donald Snodgrass: "The Distribution of Schooling and the Distribution of Income." February 1979.
54. Donald Snodgrass: "Small-Scale Manufacturing Industry: Patterns, Trends and Possible Policies." March 1979.
55. James Kocher and Richard A. Cash: "Achieving Health and Nutritional Objectives Within a Basic Needs Framework." Prepared for the Policy Planning and Program Review Department of the World Bank. March 1979.
56. Larry A. Sjaastad and Daniel L. Wisecarver: "The Little-Mirrlees Shadow Wage Rate: Reply." April 1979.
57. Malcolm Gillis and Charles E. McLure, Jr.: "Excess Profits Taxation: Post-Mortem on the Mexican Experience." May 1979.
58. Donald R. Snodgrass: "The Family Planning Program as a Model for Administrative Improvement in Indonesia." May 1979.
59. Russell Davis and Barclay Hudson: "Issues in Human Resource Development Planning: Research and Development Possibilities." June 1979.
60. Russell Davis: "Planning Education for Employment." June 1979.
61. Russell Davis: "With a View to the Future: Tracing Broad Trends and Planning." June 1979.

---

To Order: Send U.S. \$2.00 each paper to:

Publications Office,  
Harvard Institute for International Development,  
1737 Cambridge Street, Room 616  
Cambridge, Massachusetts, 02138, U.S.A.

(Includes surface mail; air mail rates on request).  
Please order by number only.

Checks should be made payable to Harvard University. Overseas orders should be paid by International Money Order; we cannot accept coupons of any kind.

62. Noel McGinn and Donald Snodgrass: "A Typology of Implications of Planning Education for Economic Development." June 1979.
63. Donald Warwick: "Integrating Planning and Implementation: A Transactional Approach." June 1979.
64. Donald Snodgrass with Debabrata Sen: "Manpower Planning Analysis in Developing Countries: The State of the Art." June 1979.
65. Donald Warwick: "Analyzing the Transactional Context for Planning." June 1979.
66. Noel McGinn: "Types of Research Useful for Educational Planning." June 1979.
67. Noel McGinn: "Information Requirements for Educational Planning: A Review of Ten Conceptions." June 1979.
68. Russell Davis: "Development and Use of Systems Models for Educational Planning." June 1979.
69. Russell Davis: "Policy and Program Issues Raised by the Application of Compound Models." June 1979.
70. Russell Davis: "Planning the the Ministry of Education of El Salvador: Organization and Planning Activity." June 1979.
71. Noel McGinn and Donald Warwick: "The Evolution of Educational Planning in El Salvador: A Case Study." June 1979.
72. Noel McGinn and Ernesto Schiefelbein: "Contribution of Planning to Educational Reform: A Case Study of Chile 1965-70." June 1979.

---

To order: Send U.S. \$2.00 each paper to:

Publications Office,  
Harvard Institute for International Development,  
1737 Cambridge Street, Room 616,  
Cambridge, Massachusetts 02138, U.S.A.

(Includes surface mail; air mail rates on request).  
Please order by number only.

Checks should be made payable to Harvard University. Overseas orders should be paid by International Money Order; we cannot accept coupons of any kind.

73. Russell G. Davis: "A Study of Educational Relevance in El Salvador," July 1979.
74. Gordon, Lester E. et al.: "Interim Report: An Assessment of Development Assistance Strategies." July 1979.
75. Donald R. Lessard and Daniel L. Wisecarver: "The Endowed Wealth of Nations Versus The International Rate of Return." July 1979.
76. David Morawetz: "The Fate of the Least Developed Member of an LDC Integration Scheme: Bolivia in the Andean Group." July 1979.
77. J. Diamond: "The Economic Impact of International Tourism on the Singapore Economy." August 1979.
78. J. Diamond and J. R. Dodsworth: "The Public Funding of International Co-operation: Some Equity Implications for the Third World." August 1979.

---

To order: Send U.S. \$2.00 each paper to:

Publications Office,  
Harvard Institute for International Development,  
1737 Cambridge Street, Room 616,  
Cambridge, Massachusetts, 02138, U.S.A.

(Includes surface mail; air mail rates on request).  
Please order by number only.

Checks should be may payable to Harvard University. Overseas orders should be paid by International Money Order; we cannot accept coupons of any kind.