THE MATERIALS AND METHODS OF IMPLEMENTATION IN THE DEVELOPMENT OF THE CURRICULUM: OUTLINE OF A MODEL AND SOME ILLUSTRATIONS FROM SWEDEN

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1. INTRODUCTION

As here conceived the subject of this paper is not to answer questions about what materials and what methods are to be used in the development of a new — or changed — curriculum. To problems of this type that, indeed, may be a headache for any school administrator, there is perhaps no single answer, even though some minimum requirements for alternative strategies may reasonably be set up. Nor do we aim at describing common trends in implementation policies in different countries, although this might be a legitimate interest for members of a comparative education society. Instead I should like to focus this paper on curriculum reform as a case for comparative theory as well as for comparative empirical evaluation in which materials and methods of implementation not only play an important role for the final outcome of the reform but also themselves call for an evaluation program of a comparative kind. The illustrations are limited to Sweden not only for personal reasons. The recent secondary school reform was subject to a rather comprehensive planning program, in which educational research played an important role in some strategic areas. Moreover, there is also a special follow-up program which includes some systematic studies especially designed for the evaluation of the reform and its implementation. Finally, in comparison with most other systems, the Swedish one seems at present useful for the discussion of the problems of implementation because it is in itself rather homogenous and, at the same time, the new reform, in some respects, means quite radical changes.

2. SOME GENERAL THEORETICAL CONSIDERATIONS

2.1. A Basic Model

Any school system may be analyzed into the following main components, with a special regard to the relationship between the system and society (see fig. 1). The system is a function of (1) society at a given time (T1), (2) Different needs or demands are taken into consideration when deciding on the general goals or more immediate objectives of the system; (3) These goals and objectives themselves. Which needs or which demands are taken into account depends upon the general cultural philosophy and tradition as well as on the place of the system in the entire educational system of the country. It goes without saying that the pattern of needs behind a decision on a primary school system is not necessarily the same as that behind one on a secondary school. It is also important to know if there are parallel sub-systems at the
same age level. Anyhow, it may here suffice to mention as examples three main demand-factors that seem to be present almost universally: the needs of (a) pupils, (b) general education and (c) vocational or other specialized education also in terms of concentration on a narrow range of subjects. The concern for the pupils must not be limited only to the methods of instruction in order to adapt the teaching to their readiness at different levels of maturity, but may also imply taking up contents, subject-centred or not, and methods as a response to the pupils’ own wishes.

*Fig. 1. A general model for a curriculum reform cycle, including an implementation program connected with a follow-up program in terms of a functional analysis.*

Every factor need not necessarily have a positive weight at every stage of the educational system. In the first place zero-weights seem to be relevant for specialized education in lower grades at the same time as concern for general education seems to diminish rather rapidly at the university level. The main point of interest here is, however, that the integration of the main demand-factors mentioned above and other similar variables is a process of
decision that implies giving weights to different values. Therefore, every
decision on educational objectives of a school system is a political act, to
which educational theory and research may supply relevant (or irrelevant!)
information but in which the educational researcher as a scientist cannot
reasonably take any responsibility. Thus, as researchers we can never claim
that a certain curriculum program is scientifically better than another one.

We also want to mention that the decision about the objectives reasonably
has to pay due regard to future development, for it takes a certain time before
the first generation leaves a new system and in most cases there is a demand
that the system should be able to fulfil the needs of both pupils and society
for a rather long period in order to avoid too far-reaching reforms too often.
Of course, this does not prevent minor changes or adaptations. In order to
underline the principle of trying to take the future into account when deciding
on the objectives of a reformed system, we have drawn a special arrow in
fig. 1 from the time of decision on the new system (T2) to another point (T3)
on the time axis that may in its turn be divided into a short-time and long-
time perspective. In order to prevent misunderstanding, I should also like
to underline quite explicitly that this concern for future changes by the
decision makers does not necessarily mean a more or less passive acceptance
of current trends of development. Quite the contrary. There is plenty of
room for the political will as well as for other dynamic forces of the kind that
put the question: for what kind of society do we want to prepare the new
generation and how can school as a system promote such goals? Also an
acceptance of status quo implies de facto a value statement of no less political
content than a deliberate plan for change. In both cases one is facing
the fundamental problems of socialization contra indoctrination, respect for
minorities and individualities and also for democratic life as a continuous
process of discussion and decision.

These problems will, of course, not be treated at any length here. Our
starting-point is the implementation situation that takes place after the
decision has been made about the goals and objectives of the reform. It
seems, however, important to underline that any decision about means and
strategies of implementation has to be in accordance with the fundamental
and long-time objectives of the reform itself, although this may mean a
certain loss of effectiveness.

So far we have been dealing with the school system as a totality. Turning
to the problems of implementation we have now to specify some main com-
ponents within it. If we try to look at the school system as the educational
planner must in a macro-perspective, in order not to lose the over-view, we see
that the following main factors seem to be sufficient for our purpose, viz.
(4) the pupils, (5) the teachers (and other school personnel), (6) the frames and
resources, (7) the teaching process itself and (8) the attainments (results, out-
comes) in terms of skills, knowledge and attitudes. The lower part of fig. 1
has to be read as follows: Teaching means that the pupils are moving from
an initial state, guided by the teachers within certain frames and with certain resources, through an educational process to a higher level of performance, to new knowledge and to new, changed, or more firmly established, attitudes. The effects of the educational efforts may in principle be evaluated only through a comparison between the pupils' initial and final level of attainment in a certain respect but the final attainments have also to be related to the objectives.

The pupil and the teacher factors (4 & 5), of course, refer both to their general sociological characteristics as well as to their prior training in different fields. The attainment factors (8) may refer to the cognitive, affective and psycho-motor dimensions and, within these, also to the taxonomical level (Bloom et al 1965, Krathwohl et al 1956, Scriven 1967) for different parts or units of the curriculum. Although the paradigm may look like a sample from a textbook in educational technology, it does, by no means, presuppose any behaviouristic outlook.

Most research on the effectiveness of different school settings has been carried out according to designs in which the outcomes are directly related to different independent variables regarding pupils, teachers or frame conditions without paying any profound attention to the educational process. At the same time, the dependent variables very often are measured in terms of quite general functions, e.g. standardized achievement test with a high loading of general intelligence and with little relation to what has really been going on in the classes. The content validity thus has been low. The problem of grouping and class-size may be regarded as good examples of this. (See fig. 2). For our problem, however, it is important to stress that the evaluation instruments, aiming at assessing the actual instructional outcome against its own objectives must pay very close attention to the problem of content validity.

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**Fig. 2. A general paradigm showing the relation between the independent variable and teaching process, achievement and objectives in research on grouping**

Solid lines: Factors considered in traditional research
Broken lines: Factors of interest for future research

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Background factors under control</th>
<th>Intervening variables</th>
<th>Dependent variables</th>
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<tbody>
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<td>Grouping systems:</td>
<td>Social class</td>
<td>Process</td>
<td>Achievement</td>
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<tr>
<td>Positive selected</td>
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<td>Comprehensive</td>
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<td></td>
<td>Teacher</td>
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<td>validity</td>
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THE MATERIALS AND METHODS OF IMPLEMENTATION

Frame factors as here defined refer to all those conditions and resources that are available for the teaching during the school year and that are under control from the central or local school authorities although they cannot readily be changed during the school year. Excluded are general environmental conditions such as the social, economic and cultural climate in the region or the community. Included are physical frames such as the school buildings and their equipment, the distance between school and home, etc. Other kinds of frames refer to the supply of teaching aids, books, audio-visual equipment, filmstrips, instructional programs, etc. Still others refer to organizational conditions such as the total time at disposal also for different subjects and special activities, the class-size, the structure of the classes and the criteria for grouping and streaming, the pattern for disposal of the teachers and other school personnel, e.g. team teaching or traditional classroom teaching. So far, the teachers, already mentioned as a certain factor, may also be regarded as a frame factor, if wanted. To the frame factors may also be referred the general directions given by the headmaster or equivalent authority for the use of different methods of instructions such as group work and individualization.

Finally, process variables (7) refer to methods actually used in the teaching situation, patterns of work developed among teachers and pupils, factual use of teaching aids as well as amount of time devoted to learning, practicing, reporting, repeating and other activities, related also to the curriculum contents.

The obvious reason for distinguishing process factors from frame and attainment factors is their key position. Although difficult to assess and very often neglected in evaluation studies, they represent a necessary link between the two: no attainments can ever be reached without a learning process within the individual, while the same attainments may be the final outcome of quite different processes with regard to time and methods of instruction. On the other hand, the implementation of a reform — as well as the running of a school system in general — is never done through direct control over the educational process by the school authorities, but is exerted through a combination of actions aiming at influencing the process in a certain way. Such actions are not only special training or retraining of teachers, supply of guidelines, textbooks, preconstructed programs and other teaching aids, but also decisions about other different frame factors such as number of hours a week, amount of time for group work, homework, etc.

This is important for two reasons. Firstly, it draws attention to the theoretically obvious, but in practice very often underestimated, fact, that no change is ever to be expected if concrete steps are never taken in order to motivate responsible people in the field to change their behaviour so that there will be a change in the whole educational process that reasonably corresponds to the intentions behind the reform. Secondly, and still more important, in order to bring about the best possible effects of a reform, one ought to know how and why different teachers and other frame factors in fact do function with regard