MODELS FOR CURRICULUM DEVELOPMENT

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INTRODUCTION

THERE is increasing interest amongst university teachers in all components of the curriculum process rather than just for the content of a course of study. For example, a recent survey conducted by the Advisory Centre for University Education at the University of Adelaide indicated that the majority of departments thought that course objects are important, almost all departments are extremely critical of the conventional university examinations which are set, and although lectures are still regarded as generally useful by almost one-half of the departments an equal proportion believe them to be only one of a number of different ways of teaching.

Whilst there is some merit in discussing the separate components of the curriculum process (i.e. aims and objectives, content, teaching, learning and assessment) it is also important to consider their interrelationships. If this is not done, examinations are in danger of not assessing (implied) course aims, teaching can be relatively inefficient, and learning is accompanied by frustrations on the part of students.

The purpose of this article is to illustrate the relationships between the components of the curriculum process so that the concern which is being shown by university staff for the various parts can be co-ordinated to bring about effective changes to the whole of a teaching programme.

DEVELOPING A SIMPLE MODEL

The most common picture of the curriculum used to be that which is shown in Figure 1. It illustrates a popularly held belief that education merely consists of facts which have to be examined. In his criticism of graduate education, Rogers[1] lists ten implied assumptions on which graduate programmes seem to be based.
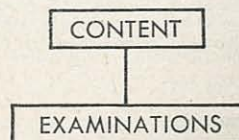

FIGURE 1. *Popular picture of curriculum*

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Three of these are:

(a) The assumption that the ability to pass examinations is the best criterion for student selection and for judging professional promise.

(b) Evaluation is education and education is evaluation.

(c) Knowledge is the accumulation of brick upon brick of content and information.

All three assumptions are summarised in Figure 1. However, even this inadequate model permits the asking of two fundamental questions by the university teacher:

(a) Why am I teaching this?

(b) How do I know how successful I have been?

The first of these questions deals with content, and the second (indirectly) with examinations. In answering the questions it is necessary to consider the validity and significance of what is being taught, the possible need for a balance of breadth and depth, and the relevance and interest to the student of the content.

The simple model shown in Figure 1 ignores the possible ways in which learning can take place (for example, generalisation followed by examples or examples followed by generalisations). The sequencing of subject matter, the cumulative and hierarchical nature of some knowledge, and the introduction of unifying concepts must also be considered. These important aspects will not be ignored if questions like the following are also raised:

(c) Why am I teaching this in this particular way?

(d) How should I organise the content of my course?

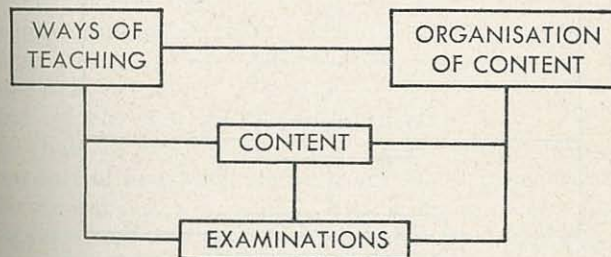The model in Figure 2 allows for questions such as (c) and (d).

FIGURE 2. *An improved curriculum model*

Although an improvement on Figure 1, Figure 2 also neglects further important questions like

(e) What books should be used in the course?

(f) Which audio-visual equipment would be helpful?
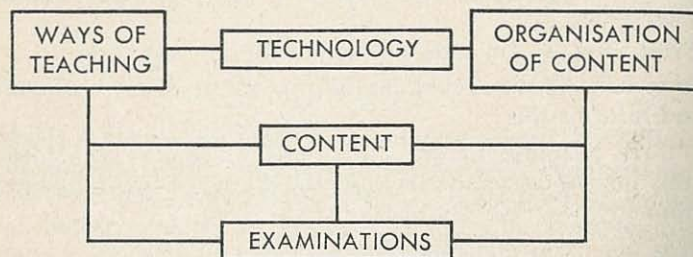and so Figure 3 is presented as a still further development.

FIGURE 3. *A further improvement to a curriculum model*

Many teachers are content to stop here. However, the fundamental question

(g) What do I expect students to be able to do, or to believe, as a result of my course?

is neglected and the answer to this question will help to determine the answers to all of the previous questions. Frequently, the question is ignored, but to ignore it is akin to saying, "Don't worry about the ball, let's get on with the game." The "ball" is the aims of the course, and these must occupy a central position in any curriculum model, as is shown in Figure 4.
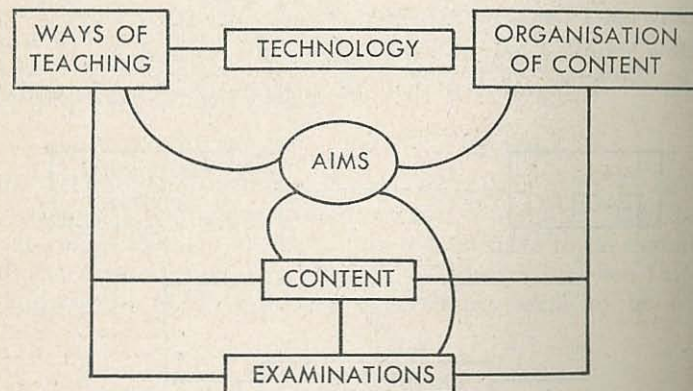

FIGURE 4. *A curriculum model*

This model shows that teaching, course content (and its organisation) and examinations all rely on clearly formulated aims. Without aims, the student becomes rather like Alice:

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

THE TYLER RATIONALE

The model shown in Figure 4, and the models to be described shortly, all have one thing in common, which is their dependence on the early work of Ralph Tyler.

Twenty-five years ago, R. W. Tyler[2] produced his course entitled "Basic Principles of Curriculum and Instruction". In it he identified four fundamental questions which, he suggested, should be answered in developing any curriculum and plan of instruction. These questions were:

1. What educational purposes should the educational establishment seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organised?
4. How can we determine whether these purposes are being attained?

The Tyler rationale (as it has become known) continues to be the basis of much of the recent curriculum development which has taken place. Attempts have been made to extend the list of possible questions, comparing the curriculum process (for example) with a journey, as is shown below:

1. Is the journey necessary?
2. Where are we going? (Aims and objectives)
3. What road do we take? (Subject model)
4. What vehicle shall we drive? (Content)
5. How shall we drive the vehicle? (Approach to learning)
6. What sort of map shall we provide? (Educational technology)
7. Who are our fellow travellers? (Other areas of the curriculum)
8. How do we tell whether we are on the right track? (Evaluation)
9. How can we tell if we have arrived? (Assessment)
10. How do we tell others? (Dissemination)
11. What mistakes did we make? (Feedback)

Also, curriculum models have been suggested which illustrate the dynamic nature of the curriculum process, such as those shown in Figures 5 and 6.

OTHER CURRICULUM MODELS

Both Kerr[3] and Halliwell[4] have suggested models which are directly derived from Tyler.
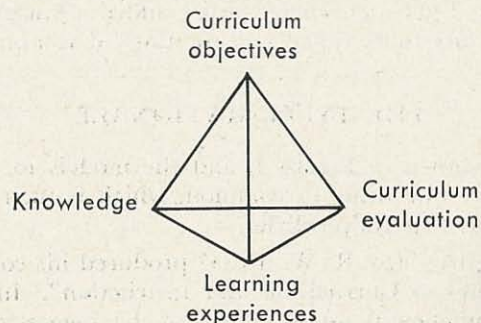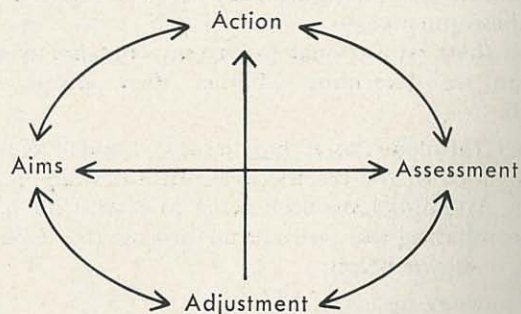

FIGURE 5. *Model suggested by Kerr* (1968)

FIGURE 6. *Halliwell's* (1968) *4A's*

Halliwell's model is particularly interesting because it implies that the curriculum developer need not start with aims. A weakness of both models is the implication that all of the outcomes of an educational process are amenable to evaluation (or assessment). This is not (at the present moment in time) true. For example, many attitudinal aims cannot be reliably assessed; and many important course aims are long-term "hopes" which are only partially achieved at university. A more realistic model would appear to be that shown in Figure 7.
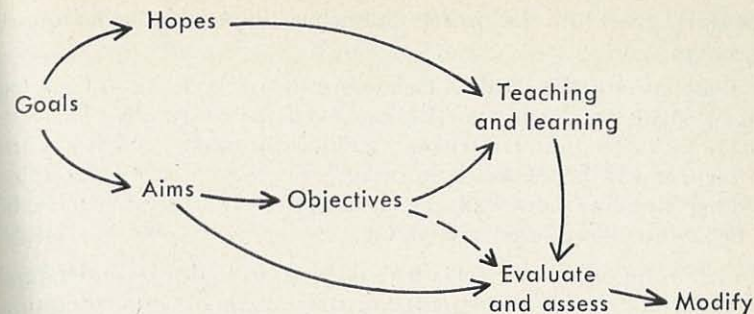
FIGURE 7. *A model for the curriculum process*

Figure 7 assumes that "goals" are the general outcomes of a course of study. Some of these are translated into long-term hopes (". . . to produce a professional doctor") and others into more detailed aims which are applicable to the whole of a course. These are the aims which are assessed (e.g. by examination). By assessment one means "How successfully have students achieved the course aims?"; evaluation covers the efficacy of teaching, feedback from students, and evaluation of the assessment procedures.

Finally, the model recognises that in most teaching programmes specific objectives are rarely formally assessed. For practical purposes it is course aims that form the basis of an examination.

THE AIMS OF A COURSE

When aims are being selected, the curriculum developer must take account of a number of "pressures", including:

(a) the development (social, psychological, physical and emotional) of the student;
(b) the nature of the subject being taught;
(c) the requirements of the consumer (e.g. business and industry);
(d) restraints (e.g. cultural and economic) imposed by resources;
(e) the competence of the teaching staff.

If these pressures are ignored, a course can be produced which is both difficult to effect and is irrelevant to the student.

OBJECTIVES

For day-to-day teaching purposes, aims must be turned into specific teaching objectives. These objectives are not a list of things to learn, they are not a syllabus (in the accepted sense of the term) and they say nothing about the teaching approach. Objectives show what a student should be able to do as a result of a learning experience.

Mager[5] gives the following characteristics of a "behavioural" objective:

1. They specify the kind of behaviour which will be accepted as evidence that the learner has achieved the objective.
2. They describe the important conditions under which the behaviour will be expected to occur.
3. They describe how well the learner must perform to have his behaviour considered acceptable.

In phrasing objectives, certain terms (e.g. to know, to understand, to appreciate, to be concerned) are open to many interpretations and so are probably best not used. More suitable terms, which are open to fewer interpretations, include: to write, to recall, to solve, to list.

Not all educationists are happy with the idea of "behavioural" objectives. Eisner,[6] for example, gives three objections to their use:

1. They are derived from curriculum theory, which assumes it is possible to predict what the outcomes of instruction will be.
2. Various subject matters place constraints upon objectives. In arts, behaviours to be developed cannot easily be specified.
3. Not all (or even most) outcomes of curriculum are amenable to measurement.

The model shown in Figure 7 with its important position given to "hopes" seems to overcome objections such as these.

For any course of study it is possible to write a vast number of objectives. If these have been derived from the course aims, then a classification of the objectives already exists. (If the objectives themselves have been formulated first, a classification will be required in order to make assessment possible.) This grouping of objectives into major classifications (which should be directly linked to the aims) produces what educationists call a "taxonomy of educational objectives". It should be noted that these taxonomies are man-made and subjective. And so, helpful though they are, the Bloom[7] taxonomies are only one way of ordering knowledge and attitudes.

The importance of attitudinal aims is being increasingly recognised. It is also being realised that "knowledge", "attitudes" and "skills" cannot be placed into water-tight boxes.

Of course, it is necessary to organise a teaching programme so that aims and objectives are achieved (i.e. they are not achieved by accident) and the assessment techniques adopted will also be closely linked to the aims. It also makes good sense to let the students have a list of course aims: the journey is so much more interesting if one knows where one is going!

SUMMARY

It is vitally important to understand that any decision regarding one area of the curriculum process is almost bound to affect other areas. Merely to consider aims, content, teaching and learning and assessment in isolation will lead to major difficulties; to ignore course aims will create problems of equal magnitude. Models can be useful when developing curricula and some of these have been outlined in this article.

References:

[1] Rogers, C. R., 1969, *Freedom to Learn*, Merrill.
[2] Tyler, R. W., 1950, *Basic Principles of Curriculum and Instruction*, Chicago University Press.
[3] Kerr, J. F., 1968, *Changing the Curriculum*, University of London Press.
[4] Halliwell, H. F., 1968, *Royal Institute of Chemistry Reviews*, 1, 2.
[5] Mager, R. F., 1961, "On the Sequencing of Instructional Content", *Psychological Reports*, 9, 405.
[6] Eisner, E. W., 1967, "Educational Objectives, Help or Hindrance?", *School Review*, 75, 250-260.
[7] Bloom, B. S., *et al.*, 1956, *Taxonomy of Educational Objectives*, Vols. 1 and 2, David McKay Co. Inc.

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