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Curriculum models: product versus process

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At the beginning of this article there is a brief outline of the nature of the curriculum and models. This leads into a discussion of curriculum models in which 'product' and 'process' models are set out and discussed. The strengths and weaknesses of both approaches to the curriculum are outlined and issues relating to the choice of model are advanced.

INTRODUCTION

When we reflect on the nursing curriculum we ought to keep a number of things in our thoughts. There are the needs of individual patients and how these might best be met, and there are the needs of the nursing students. Beyond the individual, there are societal needs; the need for an efficient and a humane nursing service. Coupled with this is the need for skilled manpower to provide this service. There are also vocational aspects. Vocational is taken here to mean fitted for the task. To be fitted for the task of nursing means having a store of relevant knowledge, supported by a foundation of science and a motive of service, and the ability to apply this knowledge in a variety of circumstances. It means using this knowledge in an ethically acceptable way which embodies respect for persons. And it also means an understanding of the ethos, mores and values related to nursing; in other words it means going through a process of socialization.

In this paper it is proposed to examine two approaches to the curriculum (the product and the process) in relation to the education of nurses. But first it is necessary to deal with the key concepts of curricula and models.

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KEY CONCEPTS

There is a plethora of definitions of the curriculum. Those by Tyler (1949), Neagley & Evans (1967), Inlow (1966) and Johnson (1967) are but a few examples. However, the definition which it is proposed to use here is the one by Stenhouse (1975).

> A curriculum is an attempt to communicate the essential principles and features of an educational proposal in such a form that it is open to critical scrutiny and capable of effective translation into practice.

There are a number of features of this definition which make it attractive. The first is the concentration on essential principles; this should avoid getting lost in a mass of detail likely to cloud the issues. A curriculum ought to be reviewed and subjected to critical scrutiny from time to time. That it should be capable of being translated into practice is a fundamental requirement since this must be regarded as the acid test for any educational proposal relating to a vocation.

According to Page & Thomas (1977) a model is a means of transferring a relationship or process from its actual setting to one in which it can be more conveniently studied. Fawcett (1984) suggests that the term conceptual model, and synonymous terms such as conceptual framework and conceptual system,

refer to global ideas about the individual groups, situations, and events of interest to a discipline.

According to Lippett (1973) conceptual models have existed since people began to think about themselves and their surroundings. He identified examples of models in the early Egyptian and Chinese civilizations and in disciplines such as physics, medicine, mathematics, chemistry and biology. Lippett (1973) made the point that models were influential in shaping the world. Examples given in this context were Marx & Engels (1968), Einstein (1950) and Sigmund Freud (1914). Marx's model related to political, philosophical, social and economic matters and provided a framework for communist ideology. Einstein's model of relativity paved the way to the atomic era. Freud's model provided a structure for the understanding of man in the context of psychoanalysis.

MODELS OF THE CURRICULUM

The Further Education Curriculum Review and Development Unit, London (FEU 1980) has set out seven variants of curriculum models and these are set out in Figure 1. Each model is based on certain assumptions about the students for whom it is designed.

In the first place the deficiency model is based on the assumption that the students have learning deficiencies which need to be corrected before progress can be made. The deficiencies may be in the areas of literacy, numeracy, interpersonal or manipulative skills. On the other hand a deficiency may relate to a student's self-image or a lack of recognition of his learning needs.

The competency model, as its name suggests, is concerned with the 'acting' part of learning in the form of performing specific skills. Practical nursing skills would be considered in this context.

A model which may be described as information-based would be concerned with the acquisition of knowledge such as the knowledge needed for a nurse to function in an informed and in an understanding manner. In a sense all education is information-based, but this model highlights the acquisition of knowledge rather than other aspects of the educational process.

Socialization, as its name implies, is concerned with the initiation of the student into the social milieu of nursing. It is characterized by the development of attitudes and values, and assumptions about the requirements of the world of work, vocational matters and society.

The four models which have just been described rather briefly are all product models, that is, the emphasis is placed on the outcome of a learning experience. The next group of models to be considered are all process models. In this context the emphasis is on learning acquired from experience of work and life, that is experiential learning. It comprises open-ended student activities with developing tendencies and capacities. The emphasis is on the quality of the learning as it takes place rather than on predetermined outcomes.

The reflective model is an example of a process model. The essence of this model is developing in the student the capacity to look at experience or data in alternative ways. It is concerned with working out possible relationships between matters being studied, making generalizations and the development of conceptual frameworks by the student. Reference to Figure 1 shows that the reflective model is mainly concerned with the 'knowing' aspect of learning, but it is also concerned with the feeling aspect.

Finally, as far as Figure 1 is concerned, there is the 'counselling model'. This model is mostly concerned with the 'feeling' aspect of learning. This model is characterized by a concern with understanding and control of personal behaviour and that of others. Counselling is sometimes described as a helping relationship, that is, helping the person to know himself/herself better. It allows feelings to be expressed. This is particularly important in a case where feelings may be acting as a barrier to learning.

PRODUCT MODEL

The FEU (1980) represents the product model of the curriculum as leading to some kind of desirable end-product. Examples given are knowledge of certain facts, mastery of specific skills and competencies, and acquisition of certain 'appropriate' attitudes and values. Among the curriculum theorists in the product mode are Bloom *et al.* (1956), Gagne (1967),

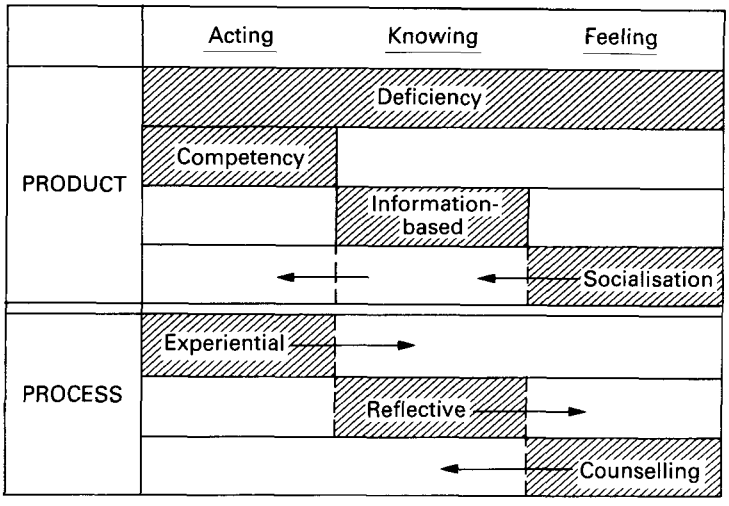

FIGURE 1 *Models of the curriculum reproduced with permission of the Further Education Unit.*

Kerr (1968), Krathwohl *et al.* (1969), Mager (1962), Tyler (1949) and Wheeler (1967).

Behavioural objectives provide the foundations on which product models of the curriculum are built. The intended outcome (the product) of a learning experience is prescribed beforehand.

There are points for and against behavioural objectives and thus the product model of the curriculum. Rowntree (1974), for example, argues that the use of behavioural objectives facilitates communication of what is intended and therefore leads to more purposeful learning. He also argues that the use of behavioural objectives helps with selection of structure and content of teaching; he further argues that behavioural objectives lead to more accurate methods of testing and evaluation.

One of the early critics of behavioural objectives was Eisner (1966). He conceded that while the objectives approach is a rational one it does have its weaknesses. A point of contention is that educational outcomes are often unpredictable and are therefore impossible to specify beforehand. Eisner (1967) argues that some subjects, the Arts for example, do not lend themselves to behavioural specificity. He further argues that behavioural objectives can become so numerous that a teacher could spend more time writing them than teaching.

The key elements of a product model of the curriculum are set out in Figure 2 and typically comprise objectives, knowledge, experience and evaluation. However, examination of Figure 3 provides a different perspective. The individual is in the centre of the educational arena and is, to some extent, regarded as a receptacle for knowledge. What is to be learned is predetermined by others and the learner takes a passive role except for the processing of great masses of information coming at him from all directions.

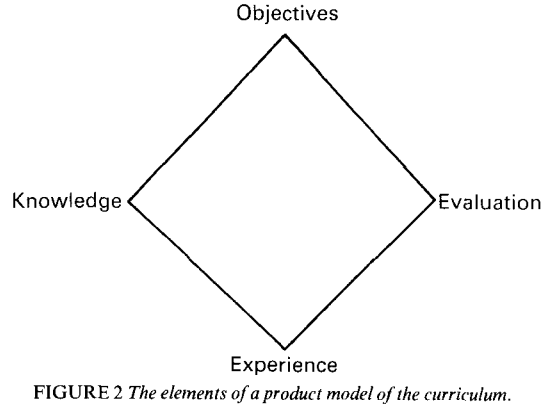

FIGURE 2 *The elements of a product model of the curriculum.*

PROCESS MODEL

The FEU (1980) depict process approaches to the curriculum as being more open-ended than the product approach. Continuous development is emphasized and the outcome is perceived in

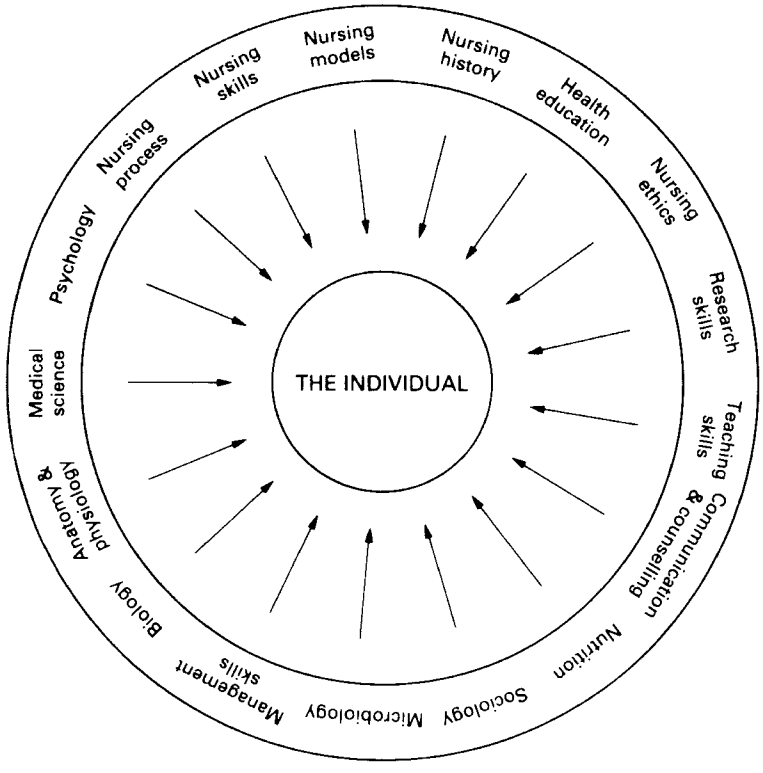

FIGURE 3 *The position of the student on a product model of the curriculum.*

terms of the development of certain desirable processes and potentialities. The examples given are ways of thinking, acting and feeling, which the learner is able to use for his own purposes. The FEU (1980) document makes a further distinction between 'product' and 'process'. The point is made that while learners may acquire knowledge as a product, that is, the results of the thinking of others, knowing is a process which involves them in developing their own useful strategies for, in the words of Bruner (1972), 'reducing the complexity and the clutter'. Another crucial point made in the FEU (1980) document is that unlike product competencies, process competencies are never mastered, only improved.

The elements of a process model are set out in Figure 4. It will be evident that the elements which comprise the nursing process (assessing, planning, implementing and evaluating) are used. What is added is the reflect/review dimension. This is, of course, implicit in the nursing process model, but it is made explicit in the process model of the curriculum because it embodies what this model is about.

An expanded version of a process model is presented in Figure 5. To start with assessment, this involves identifying the need to act. It may involve, to different degrees in particular cases, biological, psychological and social needs of the individual, then physical and social environment and interaction with the environment. Assessment involves taking a history and identifying actual and potential problems. An assessment should result in a statement of the problem (in a research mode) or a nursing diagnosis (in a clinical mode).

A range of skills are required to make an assessment and it is through education that these skills are developed. Observation is all important and will include the physical, psychological and emotional state of the individual. Coupled with observation are communication skills — verbal and non-verbal. Reassurance, support and listening skills are needed and so are explanation, interviewing and counselling skills. Cognitive

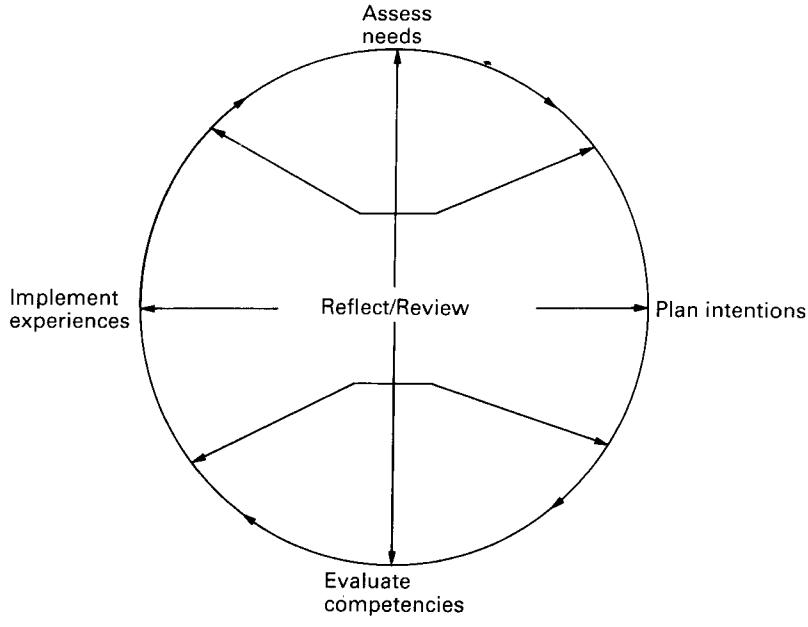

FIGURE 4 *The elements of a process model of the curriculum.*

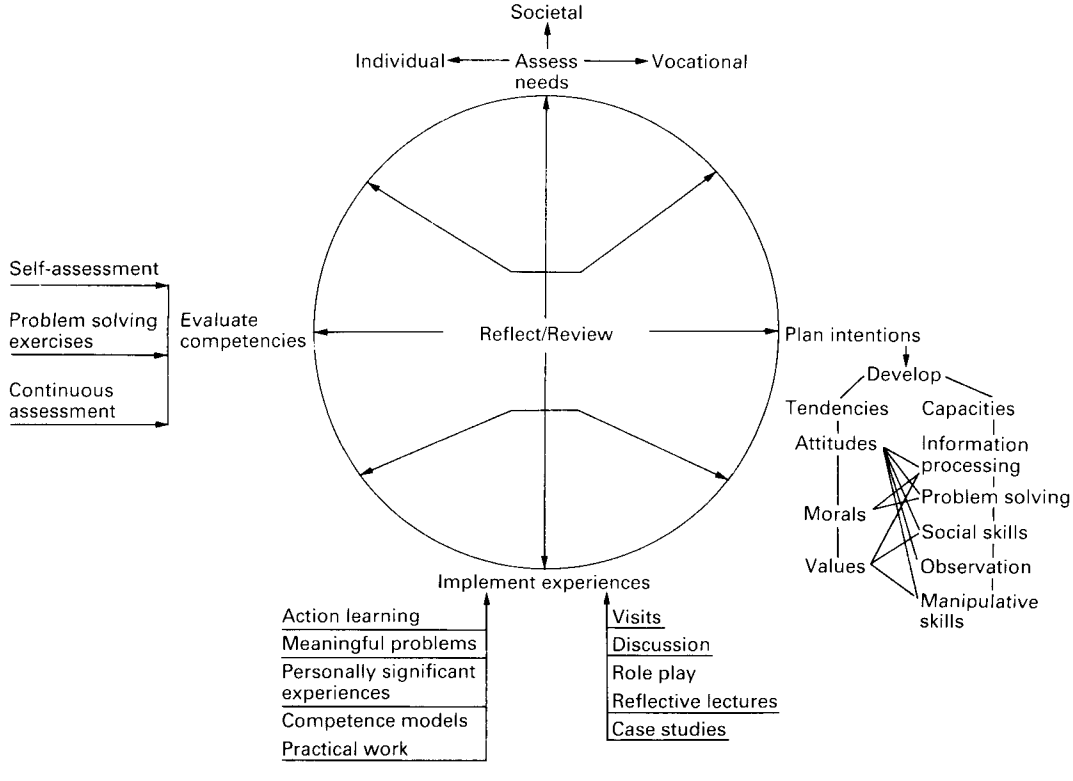

FIGURE 5 *An expanded version of a process model of the curriculum.*

skills in the form of analysis and interpretation of data, making inferences, setting priorities and stating the problems as a basis for planning are all required.

To move onto planning. In a process model intentions are used, where in a product model behavioural objectives would be used. Intentions, in keeping with the process approach of the curriculum, are more open-ended than objectives. But while it is open-ended there is a case for identifying what it is intended that students will develop.

A product approach to the curriculum would specify learning outcomes in the cognitive, affective and psychomotor domains. This fragmentation of human abilities has no place in a process approach to the curriculum. The process approach is a holistic approach and therefore regards human abilities as a unity. However, there is some difficulty in maintaining this unity. In Figure 5 human abilities are regarded as tendencies (attitudes, morals, values) and capacities (information processing skills, problem solving skills, social skills, manipulative skills, observation, communication). However, the tendencies and capacities are closely intertwined at all times. The intention of a process curriculum would be to provide opportunities to develop these abilities. The means of developing these abilities would be through providing appropriate learning experiences.

The implementation phase of the process curriculum is based on the notion that learning is an active process on the part of the learner, that it is concerned with solving meaningful problems. This means, of course, that the student either chooses the problem himself/herself or at least negotiates the choice with the teacher. A predetermined detailed curriculum, apart from some guiding principles, would be inappropriate. An outline curriculum with opportunities for development would probably be the most suitable. A range of teaching and learning strategies are used in the learning process, but the emphasis is on independent and individualized learning. There is a move away from teacher-centredness towards student-centredness.

The essence of the process model of the curriculum is represented in Figure 6. At the centre is the individual, but in contrast to the product-model the nature of the learning experiences is very different. In the process model the individual is helped to develop skills to go out and explore the world. The learner has more control over, and responsibility for his/her own learning.

In the arguments about product versus process models of the curriculum the matter of evaluation is a crunch issue. McKenzie (personal communication) suggests that a process model should tend to make a product model redundant. This is because a transition is occurring to a self-sustaining, self-explanatory type of activity whose rationale is internal to that activity. However, McKenzie (1985) accepts that in the case of basic skills, safety in practice can never be taken for granted. There is thus a place for the assessment of skills. He goes on to differentiate between a product and process view of assessment. For the former, the manifestation of skills is the greater part of the aim or purpose of the activity; for the latter the context in which these skills are manifested is crucial. Were they mutually identified by learner and teacher, as things to be mastered in the pursuit of becoming a competent practitioner? Were they assimilated within an appropriate framework of commitment and significance? These are the sort of issues to be taken into account when considering process intentions.

Self-assessment, involving reflection/review, must be regarded as an integral part of the process model of the curriculum. Assessment should also be a continuous activity. While it would not be impossible, the process model does not readily lend itself to final examinations.

There remains, however, the issue of public evidence concerning competence and safety in practice which will be a matter of concern for statutory bodies, the public as well as individual patients. It follows that there must be checks before a licence to practice nursing is awarded.

At one level projects could serve a useful purpose. A project is a student activity which is designed, planned and carried out by a student. In project work students are given freedom, with the minimum of guidance, to tackle the project in their own way. The role of the teacher is that of advisor and counsellor. The terms 'facilitator' and 'enabler' of learning are also used in this context.

A project is made up of several stages so that the end product, whatever it may be, is not the project. The project includes the activity of planning and organizing the work before it is

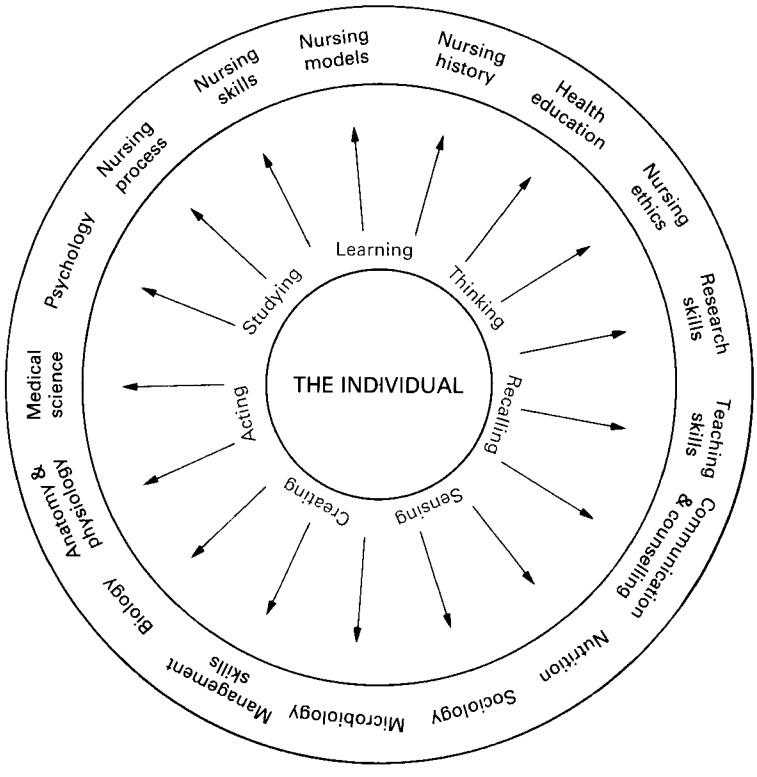

FIGURE 6 *The position of the student in a process model of the curriculum.*

finally presented. The assessment criteria should therefore take this factor into account. Projects lend themselves to the process curriculum model. Each phase is either self-assessed or assessed by a combination of student and teacher. Projects thus provide regular opportunities to reflect and review. What would emerge is a profile of assessed work which could be available for public scrutiny.

When it comes to manipulative skills, there is no doubt that the product model of the curriculum has some points in its favour. A skill can be broken down to specific objectives and used as measurements. There might be a case for retaining behavioural objectives in relation to manipulative skills. However, it might be argued that since the values underpinning both approaches to the curriculum are so dissimilar, to mix them may result in a state of dissonance on the part of the student.

Intentions relating to manipulative skills may be set out in a process model. At a conceptual level it would be possible to develop criteria as to what constitutes a skilled act in a given circumstance and what did not. At the planning stage of a skill account should be taken of the level of analysis used including the use of imagination and originality. In organizing a skill, factors to be taken into account include resourcefulness, selection of equipment and anticipation of needs. In performing a skill, the level of dexterity displayed, the attention to detail, the accuracy (say in administering drugs), the efficiency and the consideration shown to patients and colleagues are factors to be taken into account. Coupled with these would be the quality of judgement used in self-assessment — realistic/unrealistic, optimistic/pessimistic, self-critical/non self-critical, and so on.

WHICH MODEL?

A case against the product model is that trivial behaviours are emphasized at the expense of more important outcomes. This does not happen

with a process model. The prespecification of behavioural objectives restricts the teacher from taking advantage of teaching opportunities which occur unexpectedly. The nature of the process model is such that this is less likely to happen. Measurement is a feature of the product model, but may be criticized on the grounds that measurability which can be objectively and mechanistically measured is somewhat dehumanizing. The process model may be criticized because it does not lend itself so readily to measurement, but in its defence it can be argued that it is not dehumanizing. Measurability implies accountability; teachers might be judged on their ability to produce results and thus put the clock back as far as educational practice is concerned. The process model might be rejected by those who regard measurement highly.

These are some of the 'pros and cons' relating to the two curriculum models under discussion. At the end of the day which model is chosen will perhaps depend on the values of the chooser as much as on anything else.

References

Bloom B.S., Englehart M.D., Faust E.J., Hill W.H. & Krathwohl D.R. (1956) *Taxonomy of Educational Objectives: Handbook 1, The Cognitive Domain.* Ingman Green, New York.

Bruner J. (1972) *The Relevance of Education.* Allen & Unwin, London.

Einstein A. (1950) Relativity: the special and general theory. *Great Ideas Today.*

Eisner E.W. (1967) Educational objectives: help or hindrance? *School Review* **75**, 250–266.

Fawcett J. (1984) *Analysis and Evaluation of Conceptual Models of Nursing.* Davis, Philadelphia.

FEU (1980) *Developing Social and Life Skills. Further Education.* Curriculum Review and Development Unit, London.

Freud S. (1914) *The Psychopathology of Everyday Life.* Penguin, Harmondsworth.

Gagne R.M. (1967) Curriculum research and the promotion of learning. In *Perspectives of Curriculum Evaluation* (Stake R.E. ed.), Rand McNally, Chicago.

Inlow G.M. (1966) *The Emergent in Curriculum.* Wiley, New York.

Johnson M. (1967) Definitions and models in curriculum theory. *Educational Theory* **17**, 127–140.

Kerr J.F. (1968) *Changing the Curriculum.* University of London Press, London.

Krathwohl D.R., Bloom B.S. & Masia B.B. (1964) *Taxonomy of Educational Objectives: Handbook II The Affective Domain.* David McKay, New York.

Lippet G.L. (1973) *Visualizing Change: Model Building and The Change Process.* NTL Learning Resources, Fairfax, Virginia.

Mager R.F. (1962) *Preparing Instructional Objectives.* Feeron, Palo Alto.

Marx K. & Engels F. (1968) *Selected Works.* Lawrence and Wishart, London.

Neagley R.L. & Evans N.D. (1967) *Handbook for Effective Curriculum Development.* Prentice Hall, Englewood Cliffs, New Jersey.

Stenhouse L. (1975) *An Introduction to Curriculum Research and Development.* Heineman, London.

Tyler R.W. (1949) *Basic Principles of Curriculum and Instruction.* University of Chicago Press, Chicago.

Wheeler D. (1967) *Curriculum Process.* University of London Press, London.