Chapter 2

Behavioural objectives and W. J. Popham

In his *An Evaluation Guidebook: A Set of Practical Guidelines for the Educational Evaluator* (1972), W. J. Popham argues strongly for a behavioural objectives model of teaching and learning, an approach that has had a considerable influence on the field of curriculum, culminating in the development of a national curriculum in the United Kingdom in the 1990s and similar policy initiatives round the world. Though educational theorists such as Popham embraced a technicist model of curriculum inherent in the specification of behavioural objectives, other curriculum theorists associated with this approach argued for weaker versions. Ralph Tyler (1950), for example, argued that specifying objectives was the only logical way of determining learning experiences. However, he did not subscribe to the view that they could be broken down into thousands of detailed educational sub-purposes, because he felt that this would unnecessarily restrict the teacher, and overwhelm their capacity to use them.

The rationale for developing this type of curriculum model was to provide clarity of purpose where none previously existed:

> The major advantages of such objectives is that they promote increased clarity regarding educational intents, whereas vague and unmeasurable objectives yield considerable ambiguity and, as a consequence, the possibility of many interpretations not only of what the objective means but, perhaps more importantly, whether it has been accomplished.
>
> (Popham, 1972, p. 31)

Behavioural objectives, for Popham, therefore have a number of features. First, they have to be unambiguously stated so that they provide explicit descriptions of the behaviours which should occur after instruction has taken place. These behaviours furthermore have to be stated so that any group of reasonable observers would agree that the individual concerned has shown themselves capable of performing them. Second, those behaviours have to refer to the learner and not the teacher. The teacher may devise systems of instruction which in themselves have merit; however, if they do not lead to the desired

and pre-specified behaviours in learners, then they cannot be considered useful. Third, those behaviours should be expressed so that they can be measured; clarity is thus reduced to measurability. He therefore proposes that: 'The educational evaluator should encourage the use of instructional objectives which provide explicit descriptions of the post-instruction behaviour desired of learners' (1972, p. 33).

This is qualified by Popham to the extent that some objectives for instructional purposes are so intrinsically important that even if they cannot be measured they should still be included in the curriculum, for example aesthetic appreciation. However, he suggests that unmeasurable goals should not dominate the curriculum: 'We need to alter the proportion so that most of our goals are of a measurable nature, thus permitting us to determine whether they have been accomplished and, consequently, allowing us to get better at achieving them' (1972, p. 33).

Though he allows some licence for the teaching of unmeasurable goals for instructional purposes, he states quite explicitly that for evaluation purposes, unmeasurable goals are of no use. Thus, Popham's second proposition is that:

> While recognising that non-measurable goals will be of limited use for his [*sic*] purposes, the educational evaluator must be aware that instructors may wish to devote a reasonable proportion of their efforts to the pursuit of important but currently unassessable objectives.
>
> (1972, p. 35)

It should be noted here that Popham qualifies this acceptance of non-measurable goals with the suggestion that though currently they are non-assessable, they may be in the future.

Popham further explicates the differences between measurable and non-measurable goals by drawing a distinction between selecting from alternatives and constructing answers. He gives examples of each. In the first case the learner selects the true or false answer from a list of multiple-choice questions. In the second case, the learner constructs a response in the form of an essay, or a performance. In this latter case, for Popham, it is important that rather than relying on a general impression as to whether the learner is able to perform the action, criteria for adequacy are given so that it satisfies a group of judges. Again, he qualifies this, so that if the performance involves a number of criteria, those criteria should be so formulated that these judges should be able to determine, and agree amongst themselves, that the learner is able to fulfil a satisfactory proportion of those criteria. Thus Popham's third proposition in relation to behavioural objectives is that: 'The educational evaluator must identify criteria of adequacy when using instructional objectives which require constructed responses from learners' (1972, p. 39).

He is also concerned about the generality of content within the behavioural objective. He provides an example relating to the goal of understanding the

narrative form of *Beowulf*, the epic tenth-century poem. The behavioural objective can be expressed either as the identification of three elements that characterise the epic form in *Beowulf*, or as three elements that characterise the epic form. Indeed, he argues that the most contentious issue with regard to the formulation of behavioural objectives is the degree to which they should be expressed as specific instances or general statements. Popham's strictures do not rule out the possibility of expressing such instructional objectives as relating to particular expressions of literary forms or the form itself, and the assumption that is being made by him is that the form is a relatively unambiguous and accepted item of knowledge. The distinction that he makes then is between content generality and test item equivalence and thus his fourth proposition allows for some measure of generality: 'The educational evaluator should foster the use of measurable objectives which possess content generality rather than test item equivalence' (1972, p. 40). In fact, Popham provides no guidance for determining whether objectives should be specific or general, but suggests only that instructors may prefer to work at a level of generality and thus this should not be ruled out.

Popham makes a further suggestion to the effect that behavioural objectives should take account of proficiency levels of performance, and that they should refer to either the individual learner or the class as a whole. Objectives therefore can be formulated so that they are only partially achieved, but this does not rule out their usefulness as curriculum tools. In line with the general thrust of Popham's argument, the suggestion is that a proportion of the objective can be achieved, whether by the individual or the class. The objective has therefore been met if nine out of ten members of the class can perform in a way that satisfies the criteria. He is equivocal about how these proportions should be worked out, and in the end leaves it to wise judgement, though he expresses this not in terms of political imperatives or drivers but in terms of insightful appraisal as to how learners should perform, taking into account both their previous performance and how they compare to other individual and age-related groups. Thus Popham's fifth injunction is that: 'Prior to the introduction of the instructional treatment educational evaluators should strive to establish minimal proficiency levels for instructional objectives' (1972, p. 40).

Popham further suggests that educational objectives need to be disaggregated according to the types of behaviours that they were designed to promote. Drawing on Bloom's *Taxonomy of Educational Objectives* with regard to cognition (Bloom and Krathwohl, 1956) and Krathwohl's *Taxonomy* in relation to the affective domain (Krathwohl *et al.*, 1964), Popham argues that curriculum-makers should use these to develop their lists of behavioural objectives. Three types of objectives are identified: the cognitive, the affective and the psychomotor. These in turn are broken down into six cognitive domains (knowledge, comprehension, application, analysis, synthesis and evaluation), five affective domains (receiving, responding, valuing, organising

and characterising by a value or value complex), and five psychomotor domains (perception, set, guided response, mechanism and complex overt response). Thus Popham's sixth injunction is that: 'The educational evaluator will often find the Taxonomies of Educational Objectives useful both in describing instructional objectives under consideration and in generating new objectives' (1972, p. 44).

Popham's final piece of advice on writing objectives is that the curriculum-maker should borrow from existing banks of objectives to suit their needs. His last proposition is that: 'The educational evaluator should consider the possibility of selecting measurable objectives from extant collections of such objectives' (1972, p. 50).

Within this tightly defined system there are a number of propositions about curriculum knowledge that need to be examined. These relate to the nature of pedagogic knowledge and, in particular, to the reductionist form that the behavioural-objectives model implies; exclusions and inclusions within the knowledge corpus to fit the model; the purported value-free nature of the process that is advocated by behavioural objectives modellers; and the clear separation of means and ends in the system.

An epistemological critique of the model

A behavioural objectives model has to be operationalised, and, since the process involves the specification of observable performances and not inner states of being of the learner, behavioural indicators can only serve as approximations of these inner states. Bloom *et al.* (1971, pp. 33–4), for example, argue that words which refer to those inner states are acceptable as general statements of intent, but then have to be broken down into performative behaviours:

> Thus while 'understands', 'appreciates', 'learns' and the like are perfectly good words that can be used in an initial, general statement of an objective, they should be further clarified by the use of active or operational verbs that are not open to mis-interpretation.

The logic of their argument is that if words and phrases used in constructing objectives are clarified properly, then they can be translated into verifiable actions by the learner, so that the verification of those behaviours is not open to misinterpretation. Whereas it may seem that this follows directly from the need to clarify, in fact it introduces a new idea. The student behaviour that is being evaluated can only qualify as a proper objective if it is capable of being evaluated in an unequivocal way. This would seem to exclude the evaluation of a number of behaviours and therefore a number of inner states of the individual because any enactment of them is always open to interpretation as logically they can only be framed in this way. Some worthwhile educational

activities are designed to be open to a number of interpretations, and thus within the strict boundaries of a behavioural objectives model these would have to be excluded. It is clear here that the model fits better certain types of activities than others; and thus to include all worthwhile activities will necessarily involve a distortion or packaging of some of them to fit the model. Examples of these might include the more expressive objectives of the curriculum.

There is a further problem with the atomised model of knowledge that is being proposed. A subject or discipline is broken down into its constituent parts which are then expressed in terms of behavioural objectives. Since this will consist of more and less difficult operations for the student to access, some order of these objectives has to be established, and this order comprises general principles for progression through a subject. In mathematics for example, this might consist of logically prior operations being taught which the student needs to be able to do before they can proceed to higher-level operations. The completion of one particular type of task entails mastery of a number of mathematical operations that precede it. The one cannot be performed without the other, and this is a logical way of understanding progression within a subject.

However, a distinction can be drawn between disciplinary knowledge and pedagogic knowledge, where this is understood as being between those logical connections and relations between different items of knowledge and the optimum way children actually learn (the enactment of pedagogic knowledge); and these two ways of ordering a disciplinary form of knowledge may conflict. In the first case a belief in logos is essential to sustain the character of the argument, and in the second case, a belief has to be sustained that there is an optimum way by which children should progress through a disciplinary structure. If, however, neither a belief in logos nor a belief in an optimum way of progressing through a discipline can be sustained, then progression as it is currently understood is merely conventional. If it is merely conventional, then it is open to being changed because it has no a-historical warrant. A behavioural objectives model with its atomistic implications implies some form of logical ordering between the different items, and this ignores the two other possibilities referred to above: an optimum or natural developmental process of learning and a conventional ordering without any foundation in either logic or psychology.

Dunne (1988), a critic of behavioural objectives, argues that there is no clear connection between teaching these atomised forms of knowledge and inculcating intellectual virtues which may be an important goal for the educator. The most appropriate way of inculcating intellectual virtues such as respect for truth, critical appreciation and the like is through processes and methods which do not reflect the behavioural objectives model of teaching and learning.

Dunne further questions whether a behavioural objective necessarily contains within it the unambiguous evidence for its verification. He points to

the problem with a technicist language by definition precluding the need for interpretation, and the imperative of the behavioural objectives movement for unequivocal agreement that the behaviour being observed has been performed by the individual: 'This other assumption is what might be called practical verificationism – the stipulation that a well-formed statement of objectives must contain an indication of the evidence that would be required to verify whether or not it has been fulfilled' (1988, p. 67).

However, though this requirement was specified in the original model, a modified version is still logically coherent. Indeed, a modified version could be reconfigured as an objectives model, in which the links between inputs and outputs are considerably weakened, where these links refer to what is taught, how it is taught and what is learned. The OFSTED model in the UK is essentially of this type, since it involves a group of independent assessors observing teachers' and head teachers' behaviours at work, and then making an assessment as to whether and to what degree they meet a set of descriptors that are pre-specified by the body which is external to the school. Though this variant on the behavioural objectives model would seem to exclude the initial specification of objectives by the deliverer of the programme or by some other agency that compels that deliverer to operationalise these pre-specified objectives, what occurs in practice is that because the OFSTED inspection has attached to it a set of sanctions that if imposed have serious consequences for the institution being inspected, the teachers and head teacher within that institution rapidly conform to the behaviours specified in the evaluation protocol.

There is a further consequence: a behavioural objectives model in its most extreme form must specify those types of objectives that conform to the model and exclude those objectives that do not. And as I have suggested, this means that the objectives or purposes of a curriculum and the relative priority that is given to each of them is determined not by the criteria that a society develops as to the most appropriate and worthwhile items that should go in a curriculum, but by whether those objectives can fit a behavioural objectives model; or in other words, whether they can be specified in such detail, that, to use Dunne's term, they can be practically verified. I have already suggested that the objectives of a society as they are expressed in a school curriculum do not always take the same form. That is, some of these objectives can be better formulated within the model proposed by behavioural objectivists than others. For example, it is unlikely that expressive objectives can be formulated in such a way that an unambiguous view can be taken of whether the individual pupil can perform them. If such an unambiguous view can be given, it is likely that the expressive objective has been so formulated that it loses some of its force. As a result, there is a temptation to discard or marginalise objectives such as these, not because they are not worthwhile and thus should not form an essential part of the curriculum, but because they do not and cannot conform to the curriculum model being used.

Stenhouse (1975) in his seminal book, *An Introduction to Curriculum Research and Development*, offers other objections to the behavioural objectives form of knowledge. The first of these objections is that trivial learning behaviours may be prioritised at the expense of more important outcomes because they are easier to operationalise. As Stenhouse points out, the way this objection is framed can only be resolved by empirical investigation. However, there is a more profound point at issue, which is not directly addressed by the way this objection is framed, and this is that certain types of objectives can be framed in behavioural objectives terms (we may then want to call them trivial, but that is a different argument), whereas other types of objectives cannot be so framed. Thus concern for the spiritual well-being of pupils may be an entirely legitimate aspiration for a curriculum-maker, but determining whether at the end of a course of teaching this has been achieved is more difficult. In this particular case, it can only be framed as a guiding principle and not as a state of behaviour that can be identified after the event, however long after the event an attempt is made to identify it. However, there is a further part of the argument that we need to address: given that it is easier to express some objectives in behavioural terms and that these tend to be at a low level, then these will be prioritised at the expense of higher-level objectives simply because the latter cannot be expressed in simple identifiable terms. So, if a behavioural objectives model is adopted and there is pressure on teachers to teach to those objectives that can be measured in relatively simple ways, then these will be prioritised at the expense of those objectives which cannot be so measured. This is an argument that can be tested empirically. Galton *et al.* (2003) and Galton and MacBeath (2002) suggest that a deliberate narrowing of the primary school curriculum has occurred in the UK since the mid-1980s in response to the imposition by policy-makers of a behavioural objectives curriculum model, so that the school in general achieves a better position in the league table (in which schools' attainments in relation to specified targets are compared) with consequent losses in creativity and motivation.

Dunne makes a further point about such a specification. A behavioural objective has to be written at a general enough level so that an unequivocal judgement can be made as to whether it has been met. This presumes that the judgement being made is devoid of context, as consideration of context may not allow the behaviour being assessed to be unequivocally determined. The language used in the framing of the objective therefore has to be of a technicist nature, which means that the language itself has been stripped of all those elements that refer to context. In short, the language has to be decontextualised: 'What must be overcome, likewise, is any boundedness by particular contexts – any relativizing or qualifying to be done by users of this language in deference to a particular context in which it is used' (Dunne, 1988, p. 67).

Furthermore, this language has to be explicit, and a behavioural objectives model rules out not only context, but also the tacit element of language.

Delivering the curriculum

In this model, teaching is understood as the delivery of a set of pre-specified behavioural objectives which can be translated into observable behaviours and it is therefore positioned between the formulation of objectives and the evaluation of pupil behaviours after the event. The technical language therefore applies to this activity as much as it does to the input and output phases of the process. This approach turns the teacher into a technician, in the sense that a teacher cannot during the course of the encounter with the student speculate about the worth of the objectives or goals. These goals are pre-set, and thus context is ignored. One problem then is that the post-teaching evaluation can throw light only on the effectiveness of the teaching procedure rather than on the appropriateness of the objective or on what is being taught. A second objection is that the type of evidence demanded by the behavioural objectives model cannot provide any guidance as to how the teacher should modify their behaviour so as to produce better results. A behavioural objectives model that is underpinned by a taxonomic analysis of knowledge content does not take account of pedagogical knowledge or the way students learn.

With such a specification of the teacher–learner relationship, no account is taken of unintended effects. Since the purpose is effectively achieved if the learner can perform the clearly and explicitly stated action, the means to achieve this become irrelevant. So there is both an issue about unintended effects and an issue about the ethical consequences of arguing that any means are appropriate if the desired end is achieved. Means furthermore in this scenario are treated as ethically neutral since they do not figure as actions to be deemed ethical or not, but simply as actions which can only be judged to be ethically sound if the end-point of the process is achieved. Means are judged by criteria such as efficiency and effectiveness. Dunne (1988, p. 68) points out the following:

> I have been saying that these authors make a clear cut separation of ends and means, and deny any intrinsic purpose to means on the grounds that verified effectiveness in achieving given ends is the only relevant basis for selecting means (or 'methods'). No method, then, can, a priori, be either excluded or preferred to any other means.

Despite this clear separation of means and ends, governments in the United Kingdom have developed curricula within a behavioural objectives model, and at the same time intervened in the specification of means as well. Thus the logic of the behavioural objectives model has been commandeered to produce a performative model in which teachers are held accountable for both the production of good ends and the efficient following of means (teaching approaches) specified by outside bodies.

A further objection, made by Stenhouse (1975), is that pre-specifying explicit goals means that the teacher is rarely in a position to take advantage of

unexpected instructional opportunities. As Stenhouse notes, this can only be tested empirically, but it would seem logical to suggest that teachers conscious of the need to meet the requirements of pre-specified goals will deliberately forgo other opportunities for learning even if they can see some benefit for their students. However, implicit within this argument is a further normative question, and this is whether it is appropriate for the teacher to forgo such learning opportunities, especially when they are also concerned to map the pre-specified curriculum to the developmental patterns of their students as they understand them.

Stenhouse argues that the teacher should be concerned not only with students' behavioural changes, but also with wider issues such as the ethical dimension of their behaviour, unexpected outcomes of adopting a rigid behavioural objectives regime, and the consequences of their behaviour on other stakeholders such as parents. This argument assumes that ends and means can be clearly separated, and that the efficient delivery of behavioural objectives can be achieved without the teacher paying any attention to unexpected consequences. A child can be forced to learn something and does so effectively; however, the means employed by which the child learns may have future consequences both for them as persons and for the subsequent absorption of that knowledge, which may in the end be harmful to that child.

Stenhouse further suggests that a behavioural objectives model denies the teacher that degree of independence from external bodies and in particular from governments that is needed if a free society is to be sustained and if a truly educated society is to be developed. For example, he argues that: 'classrooms cannot be bettered except through the agency of teachers: teachers must be critics of work in curriculum not docile agents' (Stenhouse, 1975, p. 75). Stenhouse's objections rest on a particular model of how teachers should behave, which is fundamentally in conflict with governmental notions of professionalism. For Stenhouse, there can be no proper curriculum development without the active engagement of the teacher. The teacher should not be understood as a technician, whose role is to deliver a pre-specified curriculum:

> Basically, the objectives approach is an attempt to improve practice by increasing clarity about ends. Even if it were logically justifiable in terms of knowledge – and it is not – there is a good case for claiming that it is not the way to improve practice. We do not teach people to jump higher by setting the bar higher, but by enabling them to criticise their present performance. It is process criteria which help the teacher to better his [*sic*] learning.
>
> (Stenhouse, 1975, p. 83)

In summary, the adoption of a behavioural objectives model implies that all worthwhile attainments can be measured at the end of the process of learning. However, some outcomes of education can only be reflected in behaviours

which show up a long time after the teaching event and therefore cannot be expressed immediately. Second, some outcomes can more easily be expressed in behavioural terms and therefore it is likely that, if the teacher is under pressure to deliver a curriculum expressed in outcome terms, they will prioritise these objectives at the expense of those less amenable to measurement. Third, there is a temptation to express a particular objective in quantitative measurable terms and thus emphasise the quantitative aspects of the attribute, with a consequent diminution of its qualitative dimensions. The objective therefore becomes distorted. In the next chapter, Stenhouse's advocacy of a process model of curriculum development will be examined.