CHAPTER THIRTY-ONE

A practical example of a dialectical approach to educational research

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The purpose of this chapter is to present a practical example of a dialectical approach to educational research and to discuss some of the implications of this approach for the production of an educational theory which corresponds to educational practice. The example is based on my attempts to solve my practical classroom problem, 'How do I improve this process of education here?' The enquiry lasted 12 years and involved the application of four methodologies to the problem, as well as the production of seven research reports. Table 31.1 contains the title of each report, its classification in terms of Mitroff and Kilmann's (1978) analysis of methodological approaches to the social sciences and its classification in terms of the phase of the scientific inquiry. All I am meaning by the 'phase of the inquiry', is whether it follows the creative or critical episodes of scientific thinking. In the creative phase an idea is formed. It is not amenable to formal analysis in its creative formation. Once the idea is formed, however, it can be tested in the critical phase and subjected to formal analysis.

Before I describe how I solved my problem using the methodology of the particular humanist I will give my formal reasons for rejecting the methodologies of the analytical scientist (report 1), the conceptual theorist (report 3) and the conceptual humanist (report 5) as inappropriate methods for investigating my problem.

Table 31.1

Reports on my practical problem: How do I improve this process of education here?	Scientific methodology	Phase of inquiry
(1) A preliminary investigation of the process through which adolescents acquire scientific understanding	Analytic scientist	Critical
(2) Wiltshire science teachers project themselves into improving learning situations for their pupils	None	Creative
(3) An 11-14 mixed ability project in science. The report of a local curriculum development	Conceptual theorist	Critical
(4) Improving learning for 11-14-year olds in mixed ability groups	None	Creative
(5) The process of improving education within schools	Conceptual humanist	Critical
(6) The researcher's educational practice	None	Creative
(7) 'How do I improve this process of education here?'	Particular humanist	Critical

It is important to realize that the reasons given below, for the rejection of three of the four methodologies, were given in a retrospective analysis of my research. In this analysis I can give clear and precise reasons for rejecting the three methodologies. I do not, however, wish to give the false impression that the way I moved from the methodology of the analytic scientist to that of the particular humanist was by the explicit application of the reasons to my methods. As Medawar says in his paper, 'Is the scientific paper a fraud?', scientists tend to give a false impression that the development of their growth of knowledge follows a logically well-defined path when in fact intuition and guesswork play a larger part than most scientists convey in their analysis of their activities.

In the case of my own research the movement between the methodologies was characterized by an inexplicable feeling of anxiety and despair that something was fundamentally wrong with the way I was conducting my research. This sense of despair contrasted sharply with Popper's (1970) view of the satisfaction of the scientist when a cherished idea is falsified. According to Popper this satisfaction is grounded in the fact that by falsifying such ideas then one is contributing to knowledge. I can only bear witness to the fact that I experienced no such satisfaction in my knowledge that I was mistaken. I experienced despair. I overcame my despair in a decision to pursue my research in a different way. The fact that I had no clear idea where I was going in the creative phases of my research was accompanied by feelings of anxiety. The grounds of my faith that the new direction would prove fruitful are explicable only in the sense that I had a subsidiary awareness, which I could not bring into focus, that my problem was soluble. The fact that I pursued my inquiry over 12 years whilst clearly failing on three separate occasions bears

witness to this inexplicable awareness that my problem was soluble and that I should 'know' the solution when it was discovered. Before describing my solution I will consider the reasons I gave for rejecting the methodologies of the analytical scientist, the conceptual theorist and the conceptual humanist.

I rejected the methodology of the analytical scientist because it assumed absolute determinism in explanations of human action. In my own explanations for my own educational practice I assumed that my actions were in part self-generated and self-explanatory and that they were not the sole outcome of a mechanical form of causality.

My reasons for rejecting the methodology of the conceptual theorist were essentially concerned with the fact that report 3 failed to fulfil the following criteria of objectivity and validity. The criterion of objectivity was based upon Popper's (1959) view that: 'The objectivity of scienfific statements lies in the fact that they can be intersubjectively tested.' Popper has generalized this idea in his view that objectivity rests in the fact that the statements can be 'subjected to the mutual rational control of critical discussion'.

The criterion of validity was developed from the work of Schutz (see Filmer *et al.*, 1973) on the concept of adequacy. This criterion can be stated:

> Each concept in the model of action must be constructed so that an act actually performed in the world in the way indicated by the construct would be understandable for the actor himself and for his fellow men in terms of commonsense schemes of interpretation.

Report 3 was tested against these two criteria by submitting my explanation in the report, for the lives of the teachers I had worked with, to the teachers and a committee constituted by the funding agency (one of whose functions was the criticism of proposed publications), for the rational control of critical discussion. The teachers and the committee rejected the explanation on the grounds that the words in my descriptions of their actions were not directly related to the words they used to describe their own immediately lived experience and that they could not see any relationship between the models I used to explain their actions and the form and content of the explanations which they gave for their own action.

Immediately the above criticisms were made I could see that they were justified. I had not generated my explanation from the data that I had gathered. I had, in fact, attempted to show how the data could fit established models of educational innovation or my own mixed-ability model. I rejected the methodology of the conceptual theorist on the grounds that the nature of the explanation generated through this methodology did not fulfil the criteria of objectivity and adequacy.

Following the rejection of the methodology of the conceptual theorist I reconstructed my explanation from the same data-base as that used for report

3. The explanation differed, however, in that it was grounded in the assumptions of a conceptual humanist. I should like it to be clear that I subjected my reconstructed explanation, based upon this methodology, to the teachers and the committee. It was accepted by both as corresponding to the actions of the teachers and thus judged to have fulfilled the criteria of objectivity and adequacy. My own rejection of the methodology was solely related to its inappropriateness as a way of investigating my problem, 'How do I improve this process of education here?' The methodology of the conceptual theorist had enabled me to answer the question, 'How do these teachers improve a process of education for their pupils?' I had not, however, answered my own question, 'How do I improve this process of education here?' What I had done up to this point in my research was to exempt myself from the question. I had assumed that I could answer this question by studying other teachers. I decided to begin a systematic exploration of my own actions in the classroom, as I attempted to solve my problem.

'How do I Improve this Process of Education Here?'

The methodology I discovered to be appropriate to the investigation of my problem was that of a particular humanist. The mode of inquiry of the particular humanist is that of the case study and the preferred logic is the logic of the individual. In the case study I video taped my own practice as I attempted to solve my problem. My claim, to have answered my question and to 'know' how I answered it, is based upon my evaluation of two video tapes which show the differences between two of my lessons. In the first lesson I was teaching the same thing to all my pupils at the same time, i.e. it was a normal class-based lesson. In this lesson I experienced a problem because I was denying my pupils the freedom to choose some of their own course of study and denying them the exercise of their responsibility for their own learning. I was also failing to distribute my professional skills in a just way. By this I mean that my pupils had different interests and abilities, and yet I was treating them as if they were the same.

I attempted to solve my problem by reorganizing my teaching method from one which relied on class teaching to one which relied on individual and small-group learning. I was assisted in this change by the system of resource management which had been developed by the Avon Resources for Learning Unit. This unit was established in 1974 to investigate the claims being made for 'independent/resource-based learning methods'. The system of resource organization developed by this unit involves the pupils in study tours. Each tour begins and ends with a consultation between teacher and pupil. The major components of the system are:

(1) Consultation — when teacher and pupil review the work already done by the pupil and plan the next piece of work.
(2) A record card — this records the work that the pupil has already done, the assessments and observations on that work, a profile of the pupil's achievements of the main objectives for the course of work and the work the pupil is about to do.
(3) A task card bank — this contains a wide selection of task cards for the varying activities and interests of the user. The task card instructs the pupils about the resources he will need and how to use them.
(4) A master plan — this shows the titles of all the task cards and a flow chart which shows suggested routes through the task cards.
(5) The resources bank.
(6) The equipment.

The relationship between the components of the system can be represented as shown in Figure 31.1.
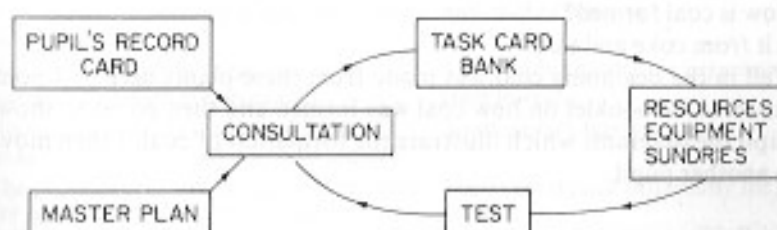

Figure 31.1

I will now describe the differences on the two video-tapes between the way I am teaching, the way the pupils are learning, and list five other differences related to my values as an educator. This description will be followed by an explanation of how I improved my practice.

The Way I am Teaching

Lesson A

I am teaching the content of my lesson plan to all the pupils at the same time. I go through my plan, demonstrating, instructing, and questioning the pupils to check that they have understood. The following extracts from the video-tape give some indication of the way I am teaching:

T. I'd like to give you some idea of how sound travels, how it gets from one place to another.

T. Turn to p. 31 of your science book.

T. Sonia please read 11.11 on the ear.

T. I'm going to give you 2 minutes to read to the bottom of the page. Then I'm going to fire questions at you very quickly to find out if you know what the outer, middle, and inner ear are for.

T. I want you to draw a diagram in your book showing the outer, middle, and inner ear and write in your own words what each one does.

Lesson B

P. Mr. Whitehead I still can't find the old and the new.

T. Do you notice any differences between the coals.

P. Yeah, they are all different shapes, some have got bigger holes some have different particles.

T. How is coal formed?

P. Is it from coke and tar?

T. Well in the beginning coal was made from these plants here — I point to the resource booklet on how coal was formed and then go on to show the pupil the diagrams which illustrate the formation of coal. I then move on to another pupil.

T. Yes Sonia

P. Is calcium a metal or a non-metal. Its a non-metal isn't it?

T. How can we find out? What would be the characteristics that would tell us?

P. Looks silvery, its heavy.

T. I've got some calcium here so should we have a look?

P. It's hard, its silvery. It's metal. Can we put some in water and see what it does?

T. Now what's happening?

P. Bubbles coming off.

T. What do you think that they are?

P. Air. Acid.

T. How would you find out?

P. Look, we've done it. pH9. Its alkaline.

In lesson A the pupils do the same thing at the same time following my instructions. I tell them what to do and they do it. In lesson B the pupils are doing different things at the same time following instructions on the task cards. Individuals are taking some responsibility for their own learning; some individuals are learning by inquiry. The pace of learning is determined by the

pupils rather than determined by the rate at which the teacher presents the content.

The Way the Pupils are Learning

In lesson A the pupils are learning a pre-specified content. This form of learning has been characterized as reception learning. In lesson B the pupils are engaged in resource-based learning where the learning is organized by the master plan, task cards, and resources. They have the opportunity to experience inquiry learning. Five other differences can be as tabulated in Table 31.2.

Table 31.2

Lesson A	Lesson B
(1) No freedom for pupils to choose their topic or pace of learning (negation of the value of freedom)	Some freedom to choose their topic and pace of learning
(2) No responsibility for organizing their learning (negation of autonomy)	Some responsibility for organizing their learning
(3) No inquiry learning (negation of the imaginative episodes of scientific inquiry)	Some inquiry learning
(4) The pupils are treated the same when there are good reasons for treating them differently (negation of justice)	Pupils are treated differently for good reasons
(5) No pupil initiated activities (negation of pupil's interests)	Some pupil-initiated activities

To establish that the changes between the lessons are improvements I must apply my educational values to the changes. These values are expressed in terms of freedom, justice, consideration of interests, worthwhile activities, and personal autonomy. In lesson A I experienced the negation of my values of freedom, the imaginative episodes in scientific thinking, the consideration of my pupil's interests and the distribution of my professional skills in a just way. In lesson B I was able to give my pupils the opportunity for inquiry learning, the freedom to choose some of their topics, to consider their interests, to distribute my time in a more just way, and to encourage my pupil's autonomy. In brief the changes were improvements in the sense that they involved a movement, from the experience of the negation of my values in practice, to the experience of living my values in practice. Having described the changes in my practice I will now offer an explanation for the changes. At a later stage I will be suggesting that the form and content of this explanation

has implications for educational theory because it is an explanation which corresponds to my educational practice.

The explanation for how I improved my practice has the following form and content:

(1) I experience a problem because some of my educational values are negated in my practice.
(2) I imagine a solution to my problem. This included the learning system from the Avon Resources for Learning Unit.
(3) I act in the direction of the solution.
(4) I evaluate the outcomes of my actions:
    (a) I did not know the resources well enough to switch my attention quickly enough from a pupil studying coal, to another on fossils, to another on metals, to be of much use to the pupils;
    (b) I had problems with pupils who were waiting to see me, in that a queue formed.
(5) I modified my actions and ideas in the light of my evaluations:
    (a) I familiarized myself with the contents of all the resources in greater detail than I had to begin with;
    (b) I reduced queueing by giving the pupils greater responsibility for marking their record cards and for finding their way through the master plan with the different routes.

I will now consider the implications of the form and content of the above explanation for educational theory.

The Nature of Educational Theory

The view of educational theory which has been dominant over the past 20 years is that it is constituted by the disciplines of education (Peters, 1977). This view holds that logically all questions of educational practice are hybrid questions in that they involve a crossing of value-judgements with different forms of empirical inquiry. According to Peters the first step towards answering questions of educational practice is to break down the question into its logically distinct components. Following this breaking-down the research and training carried out under the aegis of the different disciplines is then applied to the components which are then integrated in the solution of the practical problems. In this approach Peters isolates three principles which he says determine the selection and presentation of theory. These principles are: that educational theory must be presented in a differentiated way; the selection of the content must in the main be related to teacher's practical problems; and that the differentiated modes of thought about education must be presented in

a way that they intimate problems at a more fundamental level in the disciplines themselves, and the forms of inquiry necessary for their solution.

I do not wish to create the impression that I believe that the disciplines of education have nothing to contribute to the production of educational theory. I am saying that the view of educational theory which is explicated in the above principles is simply mistaken. My central point is that the problem is not to present educational theory as if it were constituted by the disciplines of education; rather the problem is to encourage educators to produce educational theory on the basis of explanations for their own educational practice.

My own rejection of the disciplines approach was based in my personal knowledge that after integrating the contributions from such different forms of knowledge as the physical and social sciences into a solution to a practical problem I was still left with the problem of explaining my educational practice. In other words the explanation for my educational practice could include my ability to integrate and apply in life distinctive and articulate forms of knowledge without consisting of, or being itself, any of these forms. I have suggested that one form for educational theory could be produced from the explanations for the lives of individual educators in their educational practice.

If individual educators take the responsibility for producing educational theory there is still the problem of academic legitimation to overcome. At the present time the power to define what counts as valid knowledge rests with the proponents of the disciplines approach. Academics do not easily give up their cherished ideas, especially when these ideas have structured most of their productive life. In proposing a dialectical alternative to educational theory it is pointless attempting to gloss over the differences between the two approaches. From the dialectical perspective the disciplines approach is mistaken in its view of educational theory. It is mistaken in its view of the logic which should structure the view of education. It is mistaken in its view of rationality and its view of the methods whereby we can achieve clarity about the practical activity of education. I have explained that the disciplines approach misconceives educational theory because it is not a matter of presenting this theory as if it were constituted by the disciplines of education. It is a matter of producing educational theory from the explanations for the lives of individual educators in their educational practice. The disciplines approach is mistaken in its view that logically speaking the first step in the solution of the practical problem is to break it down into its logically distinct components. The first step in the dialectical approach, when one experiences a problem because some aspect of ones educational values are negated in ones practice, is to imagine a solution to the problem. There is some agreement between the two approaches because the view of educational theory produced through the dialectical approach does indeed intimate problems for the disciplines and for the forms of inquiry necessary for their solution. The problems are not, however, intimated

through presenting educational theory as constituted by differentiated modes of thought. They are intimated in the production of educational theory itself. It is to the production of educational theory which I suggest that all educators who are seriously asking themselves questions of the form, 'How do I improve this process of education here?', should now turn to, in our productive work.