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EPISTEMOLOGICAL REQUIREMENTS TO ALLOW FOR CHANGE AND
DEVELOPMENT IN EDUCATIONAL SUBJECT-MATTER

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C O N T E N T S

				<u>PAGE</u>
ACKNOWLEDGEMENTS	3
INTRODUCTION	5
DIALOGUE	17
WHAT IS THE LOGICAL BASIS FOR B'S POSITION?	..			63
CONCLUSIONS	67
BIBLIOGRAPHY	69

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I N T R O D U C T I O N

It is^a generally accepted view that responsible educational practice depends on an understanding of the interrelationships between the child, the learning process, and the subject-matter to be learned. It is not surprising, therefore, that throughout the nineteen-sixties western educational literature has directed considerable attention to changing views and practices in task analysis, learner characteristics in the light of teaching procedures, the teaching process itself, and the evaluation of learning outcomes. What is surprising and, as I intend to show, disquieting, is that subject-matter which, in behavioural terms, is supposed to provide the stimuli for learning and become a major part of the complex of responses to be acquired, has been given abysmally low priority in terms of its epistemological status and reliability.

This lack of epistemological concern is particularly noticeable in the attitudes of educationalists to change and development in educational subject-matter. There are, for example, two extreme reactions which the idea of change and development seems to elicit from practising educationalists: On the one hand there is an energetic if sometimes unthinking resistance to anything that challenges the established order; while on the other, there is an acceptance of the 'inevitability' of change within a framework of thought that presupposes change can only be for the better. Such reactions are, of course, not new to theoretical educationalists who, for the most part, regard them as further evidence of the continuing tension between 'progressive' and 'traditional' schools of thought.

There is a tendency, however, for some theoreticians¹ to limit their analyses of the situation to an assertion about sources, a listing of similarities and difference, and a judgement in historical perspective as to whether reasons 'X' are greater than reasons 'N'. Little or no attempt, it seems, is made to expose the epistemological issues which underlie the views held.

It is all too easy to categorize one view as protagonist and the other as antagonist, as theorists are wont to do, and assign the whole process of change and development to the pigeonhole of empirical fact. What is often overlooked is that the tensions between 'progressive' and 'traditional' schools of thought, for practising educationalists, continue unabated in spite of theoreticians' attempts to demonstrate the superiority of one school of thought over the other. The history of education is filled with examples. A most arresting one occurs in mid-nineteenth century England. About that time, a number of articles and items of correspondence appeared in the press condemning the traditional school curriculum. Men as influential as Matthew Arnold and Cardinal Newman were defending an enlightened liberal reform based on the classics against supporters of scientific studies such as the then popular Spencer, who would relegate classical studies to the background, and the respected T.H. Huxley, who believed in a balanced curriculum. In spite of the raging controversy, the majority of grammar school teachers simply continued to teach an old and restricted curriculum in the same manner it had been taught for centuries.¹¹ One could hardly say that the grammar school teachers were uninformed

1. vide, for example, Brauner, C.J. and Burns, H.W. Problems in Education and Philosophy pp. 56-79
 Weiss, T.M. and Hoover, K.H. Scientific Foundations of Education pp. 80-121
 Verduin, J.R. Cooperative Curriculum Improvement pp. 20-35

11. Curtis, S.J. and Boulwood, M.E.A. A Short History of Educational Ideas p. 428

of the issues which, by nineteenth century standards, were quite well publicised. Nor could one label a body of learned men ignorant, in the strict sense of that word. How does one explain such a situation? Words and phrases like 'complacent', 'authoritarian', 'believers in old-world values' and 'unscientific' might help to provide fitting descriptions or relieve the tensions of modern 'progressive' critics but they do not offer satisfactory explanations.

What I am suggesting is that there are epistemological issues underlying the 'traditional' tendency to resist change. These are usually deep-seated and not always obvious but they do become apparent from time to time. Consider, for example, a more modern kind of resistance which Schwab (1967) met in his efforts to help a group of American teachers, curriculum-makers and administrators revise courses in high school biology. He reports:

"(They) were prepared to believe that science might grow by accretion and that minor errors of past researches might be discerned and corrected. They were horrified by the suggestion that far more radical alterations of this body of knowledge had been made in the past twenty years."¹¹

After outlining some of the major conceptual changes made in biology,

Schwab goes on to say:

"More than two years of intensive effort were required to persuade school men and women that such radical changes had occurred. The problem, indeed, was to persuade them that such radical changes were possible."¹¹

While this kind of resistance might be disappointing at a time when considerable re-evaluation of educational curricula needs to be made in the light of increasing knowledge and technology, it is by no means surprising if one considers that generations of teachers have grown up with the impression, amplified by text-books, classroom experiences, and examinations, that what they themselves learned was, somehow, always

[1. Schwab, J.J. "Problems, Topics, and Issues" in Education and the Structure of Knowledge p.5

11. op.cit., p.5

knowledge - objective, explicit, and certain.

It must be appreciated that this impression of knowledge is not peculiar to teachers alone. As a group, they merely reflect what has been and, to a large extent, still is, part of our western cultural outlook. The roots of this kind of thinking lie in antiquity from whence stems the dream of 'manifest truth'. As Majorie Grene (1966) has observed, as a conception of knowledge it 'is the pattern so powerfully impressed upon western minds through the rise of modern science.'¹ What is known is known objectively, it can be stated in final and precise form and, if it is knowledge, it is certain. We shall have to come to terms with this concept of knowledge, and see what there is in it of value to education, not because it places great weight on reason nor simply because it stems from ancient wisdom, but because whenever and wherever the objectives of education are proclaimed, a statement on the importance of the acquisition of knowledge nearly always heads the list. After all, if teaching involves the teaching of knowledge, how do we know we are handling the genuine article?

The epistemological issue exposed here can be stated quite simply. If knowledge is objective, explicit and certain, how is change and development in educational subject-matter possible? Dare we assume that knowledge changes, that what was known for certain now becomes uncertain, or that what once could be stated precisely is no longer clear or even relevant? Could we be mistaken about what has been universally accepted as fact? If we feel uncertain about our position on the matter, it would be a salutary experience to examine some of the things we unconditionally accept as being the case. How could we possibly doubt the things we see

and touch? Surely an apple is an apple, and a tree, a tree. How could we be mistaken about facts such as 'oxygen is necessary for combustion', or 'energy is conserved', or that 'parallel lines never intersect each other'? We shall **examine** this issue shortly but first, let us look at the other side of the coin.

The typical reaction of any group continually confronted with contradictions of its most cherished beliefs is to adopt an alternative point of view. It is little wonder, then, that having to cope as they do with a multiplicity of far-reaching changes, not only informational and technological, but also socio-political and psychological, some educationalists should abandon the idea of 'manifest truth' in favour of something more practical and accommodating. One solution has **been** to adopt the practicality of instrumentalism - the idea that knowledge is personal, and shaped by an individual adapting himself to **new situations.**

Its originator,¹ Dewey, neither the only nor the first of the 'progressive' reformers, was certainly one of the most influential in encouraging educationalists to reject the notion that subject-matter was something fixed and immutable, and to incorporate within their several theories the child's experience as a major component in the learning process. He was not, of course, advocating the overthrow of subject-matter per se, but was pointing out that it was the nature of the educational experience to which educationalists should direct their
 11
attention.

1. Dewey's philosophy can be distinguished from the philosophies of W. James and C.S. Peirce.

11. vide, Dewey, Experience and Education

Now Dewey's pragmatic viewpoint requires some explanation, not only because it provides a coherent and widely accepted epistemological alternative to the conservative view of knowledge, but also because as an influential body of thought it has been called upon to cover a number of educational malpractices.

Dewey¹ **attacks** what he calls 'the spectator theory of knowledge', the view that knowledge is the passive contemplation of an eternal and immutable reality. He denies that there is such a permanent reality and that the 'knower' plays a spectator's role. What is uncertain lies in nature - not ourselves, for in coming to terms with our experiences we are able to change and modify nature. By the use of the experimental method we can determine and hence control our **environment**. That which is doubtful or confused, can be clarified and settled according to our needs, interests and desires. 'Knowledge', then, consists of an intellectual grasp of a situation, which grows out of, but is not identical with, **experience**.¹¹ **Experience** is not to be confused with reflectings on experience, it is to be interpreted as providing the situation for 'knowledge' outcomes. In problem-solving terms, experience might pose a problem - in the cognitive, affective or physical domain. Its recognition, analysis, and an estimation of the means of dealing with it provide a **step** towards 'knowledge'. 'Knowledge' is attained when the problem-solver has so reorganised the problem situation as to overcome all its difficulties. It was in this kind of context that Dewey defined 'knowledge' as successful practice. Even so, he added other provisions. While theory itself was to be arrived at by the same process - **experimentation**, Dewey **acknowledged** that it was fatal

1. Dewey, J. The Quest for Certainty.

11. Passmore, J. A 100 Years of Philosophy pp.117-121

to sharply divide theory from practice. The true, **insofar** as the term is applicable, must satisfy the **scientist** and not just anyone.

In terms of its modern application, Dewey's epistemology presents us with something of a **conundrum**. On the one hand it **seems** to be generally accepted at the theoretical level, but does not appear to affect the practice; while on the other, its practical applications are seen as **indispensable**, while the theoretical implications are ignored. There are also cases where both the theoretical and practical aspects are reduced in terms of either one or the other. Childs (1950), for example, sees the 'experimental inquiry' as the **voie-vie** for all human concerns. Locating it in a 'democratic' setting, he describes the process in a series of negatives:

"...no reliance on **external authority** and **suppression of difference**, not by persuasion through propaganda, not by individualistic process of **inner intuition**, but by **universalizing the community** of inquirers, by confronting and utilizing doubt to test and **expand beliefs**....etc. (1)

Assuming for a moment that a 'problem' could arise in so 'democratic' a **setting**, how would the inquiry reach a fruitful conclusion in terms of 'knowledge'? Childs continues:

"...the basic postulate of **experimental** methods is that we get meanings - knowledge - by the process of referring **consequences** to conditions and conditions to **consequences**, and by no other methods whatsoever." (2)

Bruner and Burns (1965) echo Dewey's pragmatism with the persuasive statement: That **students** must not mindlessly accept judgements --

"(prejudgements; prejudices) offered to them by "**commonsense**". In short, to train the mind means to develop habits of inquiry that, by fruitful resolution of problems, **increase** a person's **control** over future experience. **Much of minding** involves doubting the fixed truths that the classical tradition hands

1. Childs, J.L. Education and Morals pp.176-177
2. " " " " " p. 169

down as knowledge. This sets the fallibilist against the dogmatist, the absolutist against the relativist...." (1)

But see nothing incongruous in prefacing their statement with: Education involves "providing people with the conceptual tools" in order to analyse the data" to distinguish beliefs grounded in experience from those imposed by authority."

(2)

In effect affirming Davey's experimental procedure, Verdain

(1967) points out the necessity of the outside expert, whom he describes as:

"...may be a college professor of some academic discipline or, occasionally a curriculum specialist..." (3)

and in terms of his responsibility:

"The expert is the sole judge of curriculum changes. He may make his judgement after a cursory or lengthy **observation** of the existing curriculum, or may offer an opinion without any examination of curricular offerings. His opinions on curriculum changes **can** be for a specific school or system, or he may attempt to improve American education in general...." (4)

Staff would consider the proposals, of course; but we are left with the germ of a thought:

"...since there is much **expert** opinion on the educational scene at present, the expert approach should receive considerable attention...." (5)

Accepting, theoretically, the abandonment of certain knowledge, many practitioners nevertheless like to provide a certain curriculum. There

is nothing **quite** like having a clear, uncomplicated, and definitive

1. Bruner and Davis, Problems in Education and Philosophy p.52
2. Verdain, Cooperative Curriculum Improvement 87-90
3. " " " " p.15
4. " " " " p.16
5. " " " " p.16

description of what the 'world' is in terms of the **disciplinary** viewpoints that might 'fit' comfortably into a 'progressive' curriculum, and we seem to get the situation Reid (1962) refers to and comments on as follows:

"Many children are given the impression that you must begin science by learning, in text-books, definitions which are in **fact** the result of the highest abstractions of the most advanced thinking." (1)

Or, in terms of the experimental method which begins with the foreknown results:

"....it is not experiment or discovery at all: they are not themselves finding out anything, but obediently conforming." (2)

Perhaps the most important feature Reid refers to, particularly where experiments fail and are passed over.

"The sense of reality is missed: pseudo attitudes are bred. And, as I have said, how often does one hear teachers introducing a 'therefore' or 'this proves' where there is no such inference?" (3)

(The idea that knowledge is personal, and shaped by an individual adapting himself to new **situations** might be a solution in part to the problem generated by the view that 'knowledge' is objective, and **certain**; but it is not clear in the **practice** of education whether this has come to be accepted as the case. For many educators, there is something uncomfortable about the subjectivity implied in such a view. Experience is experience, but do problems, conflicts and tensions automatically arise within it? If they do, are they conflicts, tensions and problems worthy of the time, energy and resources required to solve **them**? What solutions would be educationally **worthwhile** - in terms of modern schooling? Where would they lead? Are not some problems more easily resolved by model solutions put forward by those who have already

1. Reid, L.A. Philosophy and Education p. 31
2. " " " " " p. 31
3. " " " " " p. 31

experienced them? How is 'knowledge' actually derived from reflections on experience after the experience? Isn't some knowledge certain - beyond all doubt? The instrumentalist would be able to solve all these problems, of course, simply by engaging in experimental inquiry. 'Knowledge' would arise out of successful practice. But for many educators this won't do. For some, 'knowledge' is more likely to be found in the respective **disciplines**. Phoenix¹ maintains that schools and other **educational** institutions **should** draw their subject-matter from the disciplines rather than from the needs, concerns, and problems of learners. According to Phoenix, learning can be made simple and useful by

1. Providing analytic simplification, through which we can make understandable the classes and generalizations which are formed by particulars;
2. Providing synthetic co-ordination, by which we make evident the patterns and relationships that exist in subject-matter; and
3. To *assure* the **presence** of dynamism, the "lure to discovery", or the force which **leads** us on to new **knowledge**. It is in the disciplines, Phoenix thinks, one can find the answers to his needs, concerns and problems.

Recent thinking has stressed that knowledge can be obtained more easily by relating **facts, concepts** and minor principles to major **significant** concepts. Bruner and others have promulgated this view. In terms of **economics**, for example, there are:

"Four principles on which all of economics depends. Know these and you have the "hooks" on which the minor principles and the facts of **economics** hang. The details of economics may change, i.e. time may **retire** some of them, and new details may replace **old ones**, but the fundamental structure of economics will remain and it is the fundamental structure that counts..."(2)

Come back to Schwab's difficulty in trying to persuade curriculum-makers, administrators and teachers of the major conceptual changes made in biology and we seem to have travelled a full circle.

1. Phoenix, P.H. "The Use of the Disciplines as Curriculum Content" Educational Forum Vol. 26 No. 3, March, 1962 pp.273-280
2. Doll, R.C. Curriculum Improvement p.80

Is it possible to break it anywhere to clarify the fundamental epistemological issues?

One issue we have so far raised - if knowledge is objective, explicit and certain, how is change and development in educational subject-matter possible? If there is another, and I think there is, it might be stated as follows: If 'knowledge' is to be continually subject to change by experimentation, and if 'knowledge' is subjective in the sense that it depends on the individual's adapting himself to new situations, and if the reliability of the judgements of the past is always in doubt, how can what is labelled 'knowledge' be so called?

In the following section, I have attempted to explore the ramifications of both issues by personalizing the arguments in the form of a dialogue. I do this with a view to clearing as much ground as possible.

Speaker A is intended to represent the whole range of positions which might fairly be labelled objectivistic. Speaker C is intended to represent that odd assortment of positions which might fairly be labelled subjectivistic - with a leaning towards collectivism. Speaker B is intended to be the devil's advocate and to clear a way for the conclusions I hope to draw. I mean nothing ominous by my selection of these two categories, and the fact that I've allocated, by implication, educationalists to one side rather than the other is simply because it seems to me to be more convenient to do it that way. I think it is true to say that in epistemological discussions, proponents who begin from one point of view will seldom end up in quite the same place.