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THE CONCEPT OF LEARNING AND EDUCATION

BY

CORNELIUS R. WOODS. B. ED.

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## A C K N O W L E D G E M E N T S

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## INTRODUCTION

The two great classical philosophical theories of knowledge - rationalism and empiricism - bring with them not only different conceptions of knowledge, but also different understandings of the acquisition of knowledge. They also involve different conceptions of mind, at any rate to the extent that for empiricism the mind is, as Locke put it, like a mirror which passively receives reflections from without; while for rationalism the mind is more active, being involved in its own operations: With the development of psychology as an empirically orientated science, accounts of learning inspired by the empiricist ways of thinking have become the accepted thing. Charles Taylor (The Explanation of Behaviour, London: Routledge & Kegan Paul, 1964: p. 143) has noted that stimulus - response (S - R) theory can be construed as "a mechanistic transposition of the traditional empiricists views of epistemology".

In relation to the practice of education, behaviourists theories of learning have been the most widely used as can be seen by reference to the well-known writers on the psychology of school learning, for example Gagné, De Cecco, Lunzer and Lovell. (The appendix will explain why all these writers must be considered as falling within the behaviourist school). Further within education, the best known approach to curriculum planning - the behavioural objectives model - has made great use of behaviouristic models in attaining objectives.

Theories of learning inspired by the rationalist tradition have received very little attention within psychology. The most straightforward claim for a rationalist account of learning

has been made by Chomsky, with his now well known defence of the doctrine of innate ideas. Chomsky's claim regarding the notion of innate ideas has been, of course, made in the context of language acquisition.

Chomsky rejects the tabula rasa empiricist account and his particular point seems to be that the child could not abstract the notion of language from the data available to him. In Language and Mind (New York, Harcourt Brace, 1968, p. 74) Chomsky speaks about the problems involved in the idea of the grammar of a language being discovered by the child "from the data presented to him"; the point being that the idea of language itself with its deep structure could not be so discovered. Therefore as Chomsky sees it the only alternative to empiricism is rationalism.

However, as Behaviourist theories of learning inspired by empiricism have been the most popular in relation to school learning, this thesis will focus mainly on such theories. Further it will be the main purpose of the thesis to suggest that the behaviourist view which has achieved the most prominence in the past is of fundamental little relevance to the teacher; and if the study of school learning is going to be more meaningfully relevant to the teacher, it must concentrate more on the approach pioneered by such psychologists as Piaget and Bruner. This approach rejects the empiricist / behaviourist view, but does not like Chomsky, see rationalism as the only alternative to empiricism. Rather they attempt what David Hamlyn calls "a putative reconciliation between empiricism and rationalism". (D. W. Hamlyn, "Human Learning", in R. S. Peters (Ed.) *The Philosophy of Education*: Oxford University Press, 1968, p. 181).

CHAPTER 1The Conception of Learning in Behaviourism1. Behaviourism

Behaviourism as a conception of psychology is generally regarded as being originated by U. S. psychologist John B. Watson in 1913<sup>1</sup>. It holds its subject-matter to be the objectively observable actions of organisms. The organism is seen as "responding" to conditions (stimuli) set by the outer environment and inner biological processes. Earlier psychologies which had conceived of psychology as a science of consciousness were to be discarded and Behaviourism in the words of Watson,

attempted to make a fresh, clean start in psychology breaking both with current theories and with traditional concepts and terminology . (2)

The movement initiated by Watson was to have a considerable influence on modern psychology and social science and on man's conception of himself.

As a movement it can only be properly understood in its historical context. It is, therefore, important to examine briefly its immediate origins. Its development in the context of the early 20th century can be linked to two immediate origins - partly as a reaction against introspectionist psychology and partly as a consequence of the success which was being attained in the study of animals at this time.<sup>3</sup>

## Immediate Origins of Behaviourism

The first experimental psychological laboratory of modern history was set up by William Wundt in West Germany in 1879.<sup>4</sup> Wundt set about analysing the mind and perceptions, mainly through the technique of careful self - observation or introspection.

'According to Wundt, the subject matter of psychology was restricted to the immediate phenomena of conscious experience, and the approach to follow in studying these phenomena was one that would afford direct contact with experience. (5)

However, its influence was shortlived as notoriously inconsistent reports were being obtained by well trained introspectionists in different laboratories. It thus became evident that some of the operations of mind were, in the most exasperating manner, just out of view of the prying eye of inward reflection. The inescapable implication, according to Watson, was that such a methodological approach to psychology was unacceptable. Mental events were no longer to be the proper objects for psychologists to study. Instead, the focus was to be on behaviour. Subjective reports stemming from introspective analysis was disclaimed in favour of objective behavioural measures.

As an alternative to the techniques of introspectionism Watson proposed that the techniques that were then being so successful in animal research be adopted. In animal research consciousness could be eliminated and objective behaviour could be studied. Behaviour is real and practical and thus according

to Watson should form the basis of a new scientific psychology.

Horton and Turnage write:

As an alternative to the techniques of introspective psychology, Watson proposed a strictly objective psychology in which human and animal behavior were to receive equal emphasis and in which neither mental states nor introspective reports had any place. Watson proposed to define psychology as a science of behavior whose orientation centered upon procedure for investigating the conditions that influence human behavior. (6)

Watson himself stated:

You will find, then the Behaviorist working like any other scientist. His sole object is to gather facts about - verify his data - subject them both to logic and mathematics (the tools of every scientist) (7)

Therefore Watson proposed, that psychology in the interest of 'scientific' precision, should become a science of behaviour, and, for a while at least, man became mindless in the eyes of the behaviourist.

### Animal Studies

The particular animal studies that influenced the rise of behaviourism must be examined. The most significant works were those of Ivan P. Pavlov and E. R. Thorndike. As will be seen later the theoretical and empirical contributions of Pavlov and Thorndike were to have a profound influence on the development of behaviourism in the early 20th century. Incidentally neither of these pioneers in animal learning were actually part of the behaviourist movement. Pavlov was a physiologist and Thorndike's initial work, on animal learning predated the formal rise of behaviourism.



## Pavlov and The Conditioned Reflex

Classical conditioning is associated with such incidents as Pavlov teaching a dog to salivate at the ringing of a bell; it is stimulus substitution. In a typical experiment a dog was strapped in a test frame, with elaborate experimental controls, and a bell (conditioned stimulus) was repeatedly sounded before food (unconditioned stimulus) was placed in the mouth to produce salivation (unconditioned response), until eventually the sound of the bell brought about salivation (conditioned response) before the presentation of food.<sup>8</sup> This is the typical classical conditioning experiment whereby a conditioned response is associated with, or evoked by, a new - conditioned - stimulus.

## Thorndike's Connectionism

Thorndike's work was particularly influential from the point of view of the rise of behaviourism, in that he was the first to introduce cats, dogs, chickens and monkeys into the psychological laboratory and carried out experiments upon them to determine how they learn.

Thorndike's theory of learning is called S - R bond theory or connectionism. It implies that through conditioning, specific responses become to be linked with specific stimuli. These links, bonds, or connections are products or biological, that is, synaptic changes in <sup>the</sup> nervous system. Thorndike thought that the principle way in which S - R connections are formed is through random trial and error learning.

In a typical trial and error experiment a "hungry" animal is placed in a cage with food visible on the outside, and the door of the cage can be opened by pulling a chord hanging within reach of the animal outside the cage. After a trial and error process the animal opens the door and thereby obtains the food. On subsequent attempts the animal takes shorter periods of time through elimination of unnecessary movements. Thorndike inferred from the timed behaviour of his cats that learning was a process of "stamping in" connections in the nervous system and had nothing to do with insight or catching on.<sup>9</sup>

He believed that there were two basic laws that could explain this process. He placed considerable importance upon reinforcement.

A response is strengthened if it is followed by pleasure and weakened if followed by displeasure. In Thorndike's words,

(to) a modifiable connection being made ... between an S and an R and being accompanied or followed by a satisfying state of affairs responds, other things being equal, by an increase in the strength of that connection. To a connection similar, save that an annoying state of affairs goes with or follows it, man responds, other things being equal, by a decrease in the strength of the connection. (10)

This is his Law of Effect and is his primary law. His second law - The Law of Exercise - states simply that S - R connections are strengthened by the response occurring in the presence of the stimulus. As Thorndike put it,

"Other things being equal, exercise strengthens the bond between situation and response". (11)

## Watsons Interpretation of Learning

Though Watson was initially unaware of Pavlov's work, however, he gradually incorporated it into his theory once he became familiar with it. Thus as Hilgard states,

Watson used the Pavlov experiment as the paradigm of learning, and made of the conditioned reflex the unit of habit, building his whole system eventually on that foundation. (12)

Mind and all kinds of mentalistic concepts were not only unsusceptible to scientific enquiry but also irrelevant to the real task of psychology. In line with this way of thinking Watson and other "pure" behaviourists came to reject certain of Thorndike's ideas because it seemed impossible to exclude mind and mind related concepts from them. In particular to such behaviourists concepts of satisfaction and annoyance as included in Thorndike's Law of Effect seemed mentalistic, which could not be included in a truly scientific psychology. So Watson confined his study to only those aspects of animal life, that are sufficiently overt to make possible highly objective observation and measurement of them.

Thus Watson in rejecting every mentalistic account, explains learning in terms of such physiological mechanisms as reflexes. Mind is thereby eliminated. The common-sense dualism of mind and body is reduced to monism of body alone. John S. Brubaker writing about behaviourism and the elimination of mind states:

Behaviorism is the best instance of this theory, where, as already noted, psychologists and educators base their knowledge of human nature strictly on an observation of overt physical behavior. Mental phenomena have not standing except as their muscular correlates. (13)

Watson and others in the classical behaviourist mould know

that other events intervene between stimulus and response. But in order to maintain a coherent and systematic position, Hilgard states,

... these intervening events are posited to be much like like the observed ones, that is, implicit or covert S - R sequences. (14)

Thought, for instance, therefore, is merely implicit speech, that is, talking to oneself, Sensitive enough instruments could detect tongue or other movement accompaniments of thinking. In this way the behaviourist can hold to his consistent behaviourist position without denying that thinking goes on.

This view of learning is not only materialistic but mechanical as well. Learning being a matter of association or forming connections between stimulus and response. Connections are formed, habits are stamped in, largely by mere repetition. Unlike the case where the mind is an entity and initiator of responses in behaviourism the response waits to go into action until it receives the appropriate stimulus. All human learning is reactivity.

This connectionist/associationist view of learning was not particularly original to behaviourism, being derived from the philosophical work of British philosophers (Locke, Berkeley, Hume, Mills and Hartley) in 17th, 18th and 19th centuries. Popular acceptability of the notion of association, within philosophy at this time, was related to progress in the physical sciences. The physical universe had been shown to consist of a limited number of chemical elements that can combine in

innumerable ways. By analogy a science of mental chemistry became appealing. Ideas were the basic elements in this new science which became organised in the mind through association. Particular emphasis was placed upon the way simple ideas could be combined to form more complex ideas. Morris L. Bigge writes;

For Locke, ideas were the units of the mind, and associations consisted of combinations of ideas. Ideas were either simple or complex. One of the operations of the mind was thought to be a compounding of complex ideas from simple ones. (15)

Psychologists came to accept the notion of associationism. Watson and other classical behaviourists applied Pavlov's conceptions to human learning. And experimental psychology became dominated by the search for the laws of association.<sup>16</sup>

## 2. Neobehaviourism

While Watson popularized the behaviourist philosophy in the early 20th century, it was not, however, until the early 1930's that the psychology of learning became almost synonymous with conditioning. A neobehaviourist movement developed at this time, and some of the original assumptions of Watson were modified. Nevertheless, the central methodological doctrine about the sort of evidence on which a scientific psychology should be based remained as did the general preference for conditioning principles in explaining learning.

However, while within neobehaviourism one thinks of all learning as S - R conditioning, conditioning is divided into basic categories; classical or pavlovian conditioning - that

without reinforcement and operant or instrumental conditioning - that which occurs through reinforcement.

Instrumental conditioning with its emphasis on reinforcement can be understood as the development of the work of Thorndike, particularly the law of effect (Hilgard 1975). In neobehaviourism a more precise specification of the law is formulated. One direction of theory that represented a somewhat more precise statement of reinforcement was proposed by Hull (1943) and also Spence (1956), Miller (1959) and Skinner (1969)<sup>18</sup>.

Despite disagreements concerning the role of reinforcement as well as other learning principles, these theorists were in substantial accord regarding the central importance of classical and instrumental principles in explaining learning. This agreement on the importance of conditioning principles, regardless of persuasion on other matters, is clearly exemplified in the position taken by B. F. Skinner<sup>19</sup>. Skinner maintained that too much emphasis on theorizing was misguided and for him the approach was simply to discover the conditions that produce and control learned behaviour. He based his system almost exclusively on the principles of operant conditioning.

As for the general concept of learning, the emphasis on psychology as a science of behaviour clearly implied that mentalistic terms and concepts were to be avoided. It is most surprising to find that learning was defined as

... a change in performance which occurs under the conditions of practice.<sup>20</sup>

The term learning thereby was to mean little more than objective publicly observable performance. There was fairly general agreement that associations between stimuli and responses constituted what the organism learned, and complicated behaviours such as problem - solving or transfer to new situations were presumably the result of combining associations that had been acquired previously by the organism.<sup>21</sup>

The theoretical conception of learning within behaviourist psychology as a process of S - R conditioning has been examined. The relevance of such a view of learning for the teacher will be assessed in this dissertation. However, rather than attempt this immediately it will be useful to examine the underlying philosophical rationale of behaviourism. Any psychological system rests upon a particular view of basic human nature. The kind of assumptions of human nature taken will inevitably determine the kind of answers obtained by the psychologists. Donald Arnstine in discussing the findings of different approaches to the study of learning, in his book The Philosophy of Education, writes;

If we may trust that all empirical investigations are confronted with the same range (i.e., visible, audible, etc.) of events in a world common to them all, then we may suppose that the differences in events they select for study and the differences in the inferences they make on the basis of often quite similar sets of events, are differences in the assumptions they have made (consciously or not) about the nature of reality with which they are dealing. In the present instance, the reality in question is that of the nature of man, or of mind. The assumptions in turn can be traced back to philosophical world views that have for several millenia dominated Western culture . (22)

The main task of the following discussion will be to show that the behaviourist view of human learning, which is derived from the realist philosophical outlook, is an inadequate theory principally because of the shortcomings of the philosophical world view on which it is based. It is not that we

find correct and incorrect philosophies the way we find mistakes in mathematical proofs . (22)

Yet we can show that some philosophies, at least, no longer work when they are carried from academic theorizing to the complexity of practical affairs. As these kinds of affairs - in the present context - conceptions of education and an 'educated' person - are now much more clearly understood than they were when the philosophical assumptions underlying behaviourism were developed.<sup>24</sup>

The next section will, therefore, examine the philosophical assumptions of behaviourism. It will also focus upon how its theoretical assumptions have influenced a very important view of curriculum planning, that is, the behavioural objectives model of curriculum planning.

### 3. Behaviourism, Theoretical Assumptions and Educational Application.

The behaviourist view of man as a passive or reactive organism that is the product of an unique S - R history in a determining environment, embraces the allied philosophical doctrine of metaphysical and epistemological realism<sup>25</sup>.



Realism understood in its broadest philosophical sense, connotes any view, that accords to the objects of man's knowledge an independence of whether he is thinking about or perceiving them. Thus, an essential or ultimate reality exists independent of man. Furthermore, even if there were no human beings around to observe it, it would exist in the same sense. This according to Brubaker<sup>26</sup> is a common-sense philosophical view of the world, in that the denial of the external world would be regarded as too absurd to be contemplated.

One very important group of educational realists are the scientific realists or the contemporary logical empiricists - the current representatives of the scientific realists<sup>27</sup>. The fundamental assumption lying behind most educational research is that the object of research has a definite external physical reality. Within the scientific realist outlook, science is concerned with the discovery of pre-existent laws, which govern the world about us. Knowledge of these laws enhances predictability, and thereby control, of the variables that cause events to occur. This is as true in psychology as in physics or chemistry. Thus, through the discovery of these laws the human being gains control over the naturalistic world.

In attempting to describe this reality the educational researcher must necessarily adopt objective scientific methods. Mystical concepts of subjective consciousness are therefore irrelevant. Bigge writes;

To a consistent logical empiricist, nothing should be asserted to be real or meaningful unless, through

observation, it can be subjected to objective study, using only publicly verifiable data. If anything exists, it exists in some amount, if it exists in some amount, it can be measured. (28)

Thus, to an educational realist mind must be ignored. If a subjective concept of mind is included in human research, human nature will continue to be an enigma. Thus, realists adopt a mechanical view of human nature, reducing mind to matter, in the interests of an objective scientific study, and accordingly objective scientific measuring techniques are available to the researcher.

Thus scientific realistic philosophy is implicit in the behaviourism that was developed by Watson, and continued to be accepted by those who followed him. Morris L. Bigge writes;

Realist, mechanistic psychology, then, has been an outgrowth of the attempt of S - R conditioning theorists to make psychology as "scientific" as physics. Thus, S - R theorists have equated stimulus and response in psychology with cause and effect in physics. (29)

This is seen clearly in the writings of contemporary neobehaviourist B. F. Skinner. To Skinner human behaviour is the subject of a scientific psychology. Human behaviour can be analysed mechanically like physical concepts. Accordingly he states,

Man is a machine, but a very complex one. At present he is beyond the powers of men to construct - except, of course, in the usual biological way. (30)

Skinner maintains that the laws that govern this machine can be determined and thus man's behaviour can be controlled. He writes;

We are concerned, then, with the causes of human behavior.

We want to know why men behave as they do. Any condition or event which can be shown to have an effect upon behaviour must be taken into account. By discovering and analyzing these causes, we can predict behavior, to the extent that we can manipulate them, we can control them. (31)

Thus the behaviourists in harmony with the scientific realists see the human as a cleverly designed machine. A passive mechanical view of man determined by the environment is postulated. Such a view of man paves the way for the scientific measurement and evaluation of man's behaviour.

### Educational Application

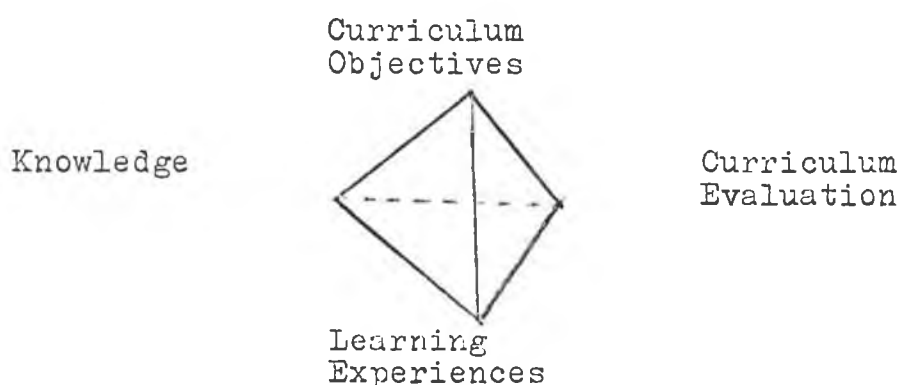
This conception of man is essentially the same view of man that is implied in the movement to make a scientific determination of educational objectives. <sup>32</sup>

What a community values is held to be an objective fact. As such, it should be as susceptible to investigation and definition as any other object of scientific research. And once given the authenticity of science - to most minds - incontestable - it becomes invested with the spirit of essentialism. The social and cultured tradition stands for external reality as it is best known to-date.

The principal concern of the curriculum is to examine things as they are in themselves. The pupil comes to know the essential nature of things and can apprehend what is ultimately real and immutable. His experiences are given shape by what is ultimately real. George Kneller writes,

... since in the realist view the world exists independently of man the school should transmit a cultural core of subject matter that will acquaint the pupil with the world around it. (33)

Objectives can be determined from this external world. And in maintaining consistency with the scientific realist position, those who have operationalized the objectives view of curriculum planning, have adopted an 'engineering' model within which to explain the curriculum process. Such a model, it is argued, provides a scientific/rational approach to the curriculum<sup>34</sup>, in that it systematically identifies the key elements in curriculum planning, namely objectives, content, learning experiences and evaluation. The essence of this model approach to curriculum planning can be seen in the basic model offered by John F. Kerr. <sup>35</sup>



The value of the model, according to Kerr, is that it suggests four basic questions for the use in the construction of a new curriculum. These questions have been identified by Ralph Tyler, a well-known advocate of this view of curriculum planning.

1. What educational purposes should the school seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organized?
4. How can we determine whether these purposes are being attained? (36)

The comprehensiveness of these questions systematically isolates all the relevant factors in curriculum construction. Thus a scientific approach is called for.

However, in the overall, according to Kerr,

"the really important questions are about objectives". (37)

The objectives component of the model is the logical starting point. Furthermore,

the most useful form for starting objectives is to express them in terms which identify both the kind of behaviour to be developed in the student and the content or area of life in which this behaviour is to operate . (38)

This is the classic understanding of objective control of all the major proponents of this concept of curriculum planning, for example, Mager, Tyler, Bloom and Taba. The behavioural objective provides the essential objectivity in curriculum planning as does the concept of behaviour in behavioristic psychology. R. M. Gagné, a behaviouristic psychologist<sup>39</sup>, who has taken a keen interest in this approach to curriculum planning, writing about the value of the behavioural objective states;

We ... frequently encounter such terms as "knowledge", "understanding", "appreciation", and others of this sort which seem to have the purpose of identifying learned capabilities or dispositions. Mager (1962) ... (has) pointed out the ambiguity of such terms, and the unreliability of communications in which they are used ... there appears to me to be no alternative to the use of the behavioural objective ... (40)

The behavioural objective provides the essential objectivity necessary for precise evaluation. Bloom puts clearly the role of evaluation in the behavioural objectives model;

The criterion of determining the quality of a school and its educational functions would be the extent to which it achieves the objectives it has set for itself ... our experiences suggest that unless the school has translated the objectives into specific and operational definitions, little is likely to be done about the objectives . (41)

Evaluation of success, it is claimed, through measuring precise objectives, is scientific. The rigour of the scientifically constructed test provides the best way forward in curriculum design and theory. The planning of a curriculum must be dominated by the ways in which we test whether children have changed their behaviours in the way desired.

Therefore, behavioural curriculum theory derived from similar theoretical assumptions and with its emphasis upon observable behaviour, followed similar methodological lines as behaviourism. In this manner curriculum construction theory accepted the sufficiency of realist epistemology and the behavioural science belief that because observables are the only human phenomenon open to scientific methods of investigation, we can, therefore, build adequate curriculum theories on this scientific rationalism.

## CHAPTER 2

The Behaviouristic Conception of Learning and Educational Theory and Practice.

This chapter proposes to examine the educational value of the behaviouristic view of learning as outlined in the previous chapter. It will be suggested that it is inadequate as a view of school learning, and three major approaches in criticism will be taken;

- (i) that the conception of learning in behaviourism is too 'broad' for educational purposes.
- (ii) that there are important questions in relation to school learning for example logical questions, which are ignored in the behaviourist account.
- (iii) that the assumptions of behaviouristic learning theory, as applied to education through the behavioural objectives model of curriculum planning, do not provide a satisfactory account of the curriculum process.

1. The Concept of Learning

It is a common place assertion that schools are places where pupils learn, or where they are supposed to learn. But no matter how universal agreement may be to this innocent-appearing statement, there is very little precision about what it means. Indeed, Hugh Sockett has remarked about the concept of learning;

No concept has been more badly treated by those who trade in definitions. It deserves considerable attention. (1)

Before any specialized enquiry can proceed very far, some precision in key concepts is important. In looking for such precision one is asking basic philosophical questions about the meaning of terms, in this instance about learning.<sup>2</sup>

Questions, for instance, about what learning is and what is implied when it is said someone has learnt something. As D. W. Hamlyn writes,

To answer such questions we have to clarify the concepts which we employ in this sphere, something that requires both reflection and familiarity with the subject to which these concepts apply . (3)

Investigations of this kind, which Gilbert Ryle<sup>4</sup> calls 'mapping the logical geography' of a concept, are not

"so much a matter for the psychologist as for the philosopher". (5)

In attempting to gain some precision in the concept, a useful way to proceed will be by looking at the 'behaviourist' definition of 'learning'. E. R. Hilgard offers the following definition;

Learning is a process by which an activity originates or is changed through reaction to an encountered situation, provided that the characteristics of the change in activity cannot be explained on the basis of native response tendencies, maturation, or temporary states of the organism (e.g., fatigue, drugs, etc.) .(6)

Thus learning is seen as any permanent modification of behaviour as a result of prior experience. This is a very broad conception of learning. There are innumerable processes through which behaviour may be changed but not all of these processes can properly be called learning. Take an example offered by Sockett,

.... on this definition of learning, we can learn true or false beliefs. That is, if someone believes that 'oil is blood of buried dinosaurs', a manifestly false belief, then he can be said to have learnt it. But how could he learn something that is false? (7)



It could not be said that such a person learned anything, though he could acquire such a false belief through some brain-washing technique. While the behaviourist for experimental purposes would consider this a case of learning, it would be grossly misleading and confusing in an educational context.

Thus a more sophisticated account is required. A number of philosophers, for example Ryle<sup>8</sup>, Peters<sup>9</sup>, Hirst<sup>10</sup>, Hamlyn<sup>11</sup>, Longford<sup>12</sup>, Sockett<sup>13</sup>, have attempted to provide a more educationally acceptable view of the concept. R. S. Peters, for example, offers a definition representative of this view;

Learning, as distinct from maturation, involves coming up to the mark according to different criteria involved in these achievements, as a result of experience'. (14)

This view is important in that it states, that it is not correct to say of someone whose behaviour or belief has changed, that he has learned anything unless he has achieved a success. Further the criteria of success are not inherent in the concept of learning itself, but laid down by the nature of what it is that has to be learned.

It is not, necessarily, that the behaviourist in his experimental work is uninterested in criteria of success, but that he tends to apply them arbitrarily, and therefore, to distract attention from their importance<sup>15</sup>. A behaviourist may set about to train a pigeon to go about with its head stretched in the air in an unnatural way. The pigeon's behaviour is 'shaped' by rewarding successive approximations to the required behaviour, until it takes the form which the experimentalist wanted it to take. In so far as the pigeon has

learned anything it has learned something determined arbitrarily by the experimentalist. And in any event

the psychologist's concern is not so much with what is learned as with the way in which it is learned ..... (16)

But in school learning the situation is different. The teacher cannot decide arbitrarily upon the criterion of success. They are internal to the matter to be learned. Thus, to take an example from Glen Langford;

... in learning arithmetic success counts in the most modest case, in being able to provide the answer 'four' to the sum of two and two. 'Five' just won't do, any more than 'Rome' is acceptable as the answer to the question 'What is the capital of France?' ... the teacher ... is governed by impersonal criteria of success. (17)

Thus learning cannot be considered apart from the object of learning. It is quite uninformative of someone to say that he is learning, without saying what, it is he is learning. Just to say 'he is learning' is incomprehensible without an object.

One is, therefore, learning a particular X. And to have learnt, is always to have come up to a particular standard; for example to know what one did not previously know, or to have mastered a particular skill. <sup>18</sup> Further, for somebody to learn X they must pay attention to particular features of the X, rather than to other features of the environment. For example, R. S. Peters writes,

It would be unintelligible, for instance, that a person could attain a mastery of Euclid by just standing on his head - unless, that is a special story was told about the

connection between adopting this position and grasping relationships between angles straight lines, etc. For, if Euclid is to be understood, there must be experiences in which attention is paid to features of figures such as triangles and squares. (19)

Two important implications arise from this account of learning. (Sockett 1976).

First, if the relevant criteria of success are inherent in the nature of the subject of learning, then in the case of beliefs these standards or criteria can only be the standards of truth. It is essential to the nature of beliefs that beliefs can either be true or false.<sup>20</sup> But we would not be prepared to grant a certificate of success to someone who had acquired a false belief. The essence of it being that one cannot logically learn something knowing it to be false.<sup>21</sup>

Secondly, if a person is to learn anything, he must pay attention to the features of what he is learning, and these features then become the standards or criteria of success. There are important empirical questions about the relevant conditions that should be established in the classroom in order to facilitate learning. But a teacher can only control these conditions. He cannot make somebody learn; the individual must see what the standards are and come up to them, that implies his voluntariness.<sup>22</sup> For example, Peters writes in connection with the learning of a moral principle;

... if the teacher is trying to get the learner to grasp a principle, all he can do is to draw his attention

to common features of cases and hope that the penny will drop'. (23)

It is central, therefore, to the notion of learning that it involves an achievement and this achievement must be the result of the person's own efforts.

This raises an important point in relation to the characterization of learning as a process. Hilgard's definition begins, 'learning is a process ....., but, in conclusion to this section, it will be argued that on the basis of what has been said about learning thus far, it would be misleading to regard it as a process, (or to put it another way, that 'learning' is the name of a process) while on the other hand conditioning could be regarded as a process.

Conditioning is a process whereby something happens to someone, but learning is more a case of someone doing something than something happening to someone. (Langford 1969). The force of this point can be illustrated by being clear about the meaning of a process, and this can be done by applying the notion of a process where it most obviously belongs, that is, to physical objects.<sup>24</sup> A piece of wood may be processed, for example, by turning it on a lathe; the process involved might be called 'turning'. This illustrates the meaning of a process it is something that happens to something in order to change it. Similarly conditioning can be seen as a process of something happening to someone. For example the pigeon in the experiment quoted earlier or in the following example of human conditioning. In a psychological laboratory a student is enabled 'to obtain

voluntary control of what is for most persons an involuntary reflex'. (25)

In one experiment of this nature, the pupil of a man's eye was trained to contract on command. In the first stage of training, a bell was rung immediately before a light was shone in his eyes. After some trials, the sound of the bell alone would cause his pupils to contract . (26)

This experiment went through further stages which need not concern us in this context.

This and the example of the pigeon are clearly cases of something happening to someone and thus, the logic of applying the label "process" to conditioning. However, as the concept of learning has been sketched in the previous pages, it has been suggested that it is more of a case of a person doing something. As Godfrey Vesey writes;

Whatever one does, in learning to do something, must itself really be something one does, something in which one is actively engaged. It cannot be simply something which happens to one. But, 'being conditioned' is precisely not something one does. It is something which is done to one - either by oneself or, as is usually the case, by someone else . (27)

The passive view of learning in behaviourism as something done to an organism from the outside, does not embrace all the essential characteristics of the concept, especially as they would apply to education. Michael Oakeshott writes;

By learning I mean an activity possible only to an intelligence capable of choice and self - direction in relation to his own impulses and the world around him. These, of course, are pre-eminently human characteristics, and, as I understand, only human beings are capable of learning.

A learner is not a passive recipient of impressions, or one whose accomplishments spring from mere reactions to circumstances, or one who attempts nothing he does not know how to accomplish. He is a creature of wants rather than of needs, of recollection as well as of memory; he wants to know what to think and what to believe and not merely what to do (28)

This is not to suggest that the learner is always active and his attention is always focused upon understanding and being able to explain, or that nothing can be learned which is not understood; nor is it meant that human beings are uniquely predestined learners whatever their circumstances. But that an activity, like education, that may include understanding and being able to explain within its range is different in its scale of achievements from one in which this possibility is denied.

This will be considered further in the final section of this chapter - in considering educational aims and values, it will be suggested that psychology that emphasizes the mastery of techniques at the expense of the ultimate values of education is of doubtful value to the teacher. And also in the following chapter, the view of man as a passive actor who merely responds to the external environment will be discussed. Evidence will be brought from various sources, which will suggest, that man may himself actively participate in his own conceptual construction of the world. But first a further philosophical matter in relation to the concept of learning must be examined.

## 2. Logical and Psychological Aspects of Learning

Apart from the conceptual/philosophical analysis of the

concept of learning sketched in the previous section, there are also further and important philosophical questions that bear upon the concept of learning. Questions particularly about the proper sequencing of material in a curriculum. That these are philosophical questions has not always been recognized within behaviourist psychology or even within psychology generally.

The point being within the context of what is being taught, there must be certain related elements of knowledge such that the possession of one necessarily presupposes the possession of others. For example, presumably a child must understand the concept of number before it can understand the concept of plus and minus. D. W. Hamlyn writes;

That this must be so is indicated by the existence of general principles for the establishment of curricula, and if it were not so any suggestion that programmes could be laid down for teaching machines would be impossible". (29)

That is not a particularly spectacular claim. However, psychologists have failed to recognize the essential philosophical nature of such questions. For example. R. M. Gagné, a contemporary 'eclectic' behaviourist, writing an article entitled, "Curriculum Research and the Promotion of Learning", states;

The appropriate sequencing of units of content (of a curriculum) can be based on empirical evidence. It doesn't have to be a matter of speculation about what the students are capable of learning, on the one hand, nor a matter of elegance of logical derivation, on the other. The pedagogical correctness of a sequence of

content units can be tested by successively applied trials of what students can actually achieve . (30)

Such a view has been challenged by for example, Hirst<sup>31</sup> Hamlyn<sup>32</sup>, and Sockett<sup>33</sup>, who argue that such a task is philosophical and not psychological or empirical as suggested by Gagné, for two main reasons.

Firstly, while there are areas in which there will be little to choose between different sequences on logical grounds, how could such a sequence be outlined initially without reference to the logical structure of the unit? Secondly, if a unit is determined in the first place on logical grounds, it does not therefore require empirical evidence to verify it.

How can something which is supposed to be a necessary truth be discovered by empirical investigations? (34)

Therefore the impression that in ordering the content of a curriculum a teacher is simply working on psychological grounds cannot be correct. The logic of the unit, the demands made by the content, must be respected; indeed they will form the basis on which such units are devised. Now just what are the logical preconditions and just what are the contingent matters is open to enquiry. Perhaps sitting down in one's armchair to plan units of this kind is a sensible way of trying to tease out what the logical questions are. But this is not doing psychology.

There is a striking absence of philosophical work in this area which may tend to make the point obvious. Because it is



not an extraordinary claim that certain aspects of learning are necessary preconditions to more advanced learnings. More significantly, however, is the point that in the construction of a curriculum, where knowledge is at stake, very complex and highly important logical and epistemological questions are of paramount significance: and D. W. Hamlyn writes:

Now, I think that there are priorities in learning which are more than psychological, and they might be described as epistemological, or logical ... In the growth of knowledge, certain things must be done before the others. ... The appreciation of certain subjects demands a certain order of knowledge ... What I am saying is that such principles of order, could be established only by decisions on what is the appropriate order for the development of knowledge and understanding of a subject. To reach such decisions demands that very knowledge and understanding of the subject itself, plus a willingness to reflect upon the exact relationships between the concepts presupposed within it. This is not a matter for psychology. I would emphasize the point . (35)

This is something that has not always been recognized in applying psychological findings to education. What has been said, amongst other things, is that it is a necessity for proper reflection on what such concepts as learning and education mean, and what they involve in consequence. Because, only in this way can we rid ourselves of misleading models which may inhibit our understanding of such concepts.

### 3. The Behavioural Objectives Model and Curriculum Planning.

The emphasis on objectives has undoubtedly highlighted the fact that educational courses have been taught and examined without the benefit of clear and unambiguous goals. Using as a primary criterion for selecting objectives that they be

... statements of ways in which the knowledge, cognitive abilities, skills, interests, values and attitudes of students should change if the curriculum is effective ,<sup>36</sup>

is a very important addition to curriculum thinking. The absence of such statements has led in part to the poor quality of teaching and instruction; broad and vague generalizations about the aims of education have contributed little to the development of the ideas such generalizations contained.

D. Hogben in an article entitled "The Behavioural Objectives Approach : Some Problems and Some Dangers" presents some of the arguments for behavioural objectives. The two major advantages are that:

1. they provide clear cut ends or goals towards which which students can work
2. because of their focus on terminal performance expressed in terms of observable behavior (exactly what the student should be able to do), they facilitate the measurement and evaluation of curriculum outcomes(37)

Hogben remarks:

These are certainly attractive advantages. If the educator has clear unambiguous statements of curriculum intent before him, then the planning of instruction and the teaching and the measurement of student performance becomes much more straightforward . (38)

However the move towards the specification of objectives has not taken place without its critics. Lawrence Stenhouse states:

"The objectives model of curriculum design and planning is no doubt a useful one, but it has severe limitations". (39)

While Hogben has remarked:

"While this (behavioural objectives) approach has some very

attractive features, its apparent simplicity and logicality conceals some very real hazards for the teacher and evaluator . (40)

It is proposed to examine some of these 'limitations' and 'hazards' of the behavioural approach. The intention being that such an examination will highlight some of the shortcomings of behaviouristic psychology, especially as applied to education, since the behavioural objectives approach has made great use of behaviouristic models in attaining objectives.

The behavioural objectives model will be criticized on two main grounds, firstly that it is too precise and specific and, secondly, that, through the adoption of a scientific stance it avoids any philosophical discussion regarding questions of educational aims and values.<sup>41</sup>

#### A. Specification of Objectives.

In specifying in detail the objectives of the curriculum one is likely to have certain influences upon the quality of actual teaching and learning. The objectives view adopts a very tight view of what should be happening in the classroom. The teacher must be working towards a particular objective at any given time. This presumes that if the teacher states his objective in advance he will be able to predict accurately what the outcome of instruction will be. According to Professor E. Eisner, however,

... the outcomes of instruction are far more numerous

and complex for educational objectives to encompass. The amount type and quality of learning that occurs in a classroom, especially when there is interaction among students are only in a small part predictable. (42)

Teaching, then, as Eisner sees it, is dynamic rather than mechanistic in character.

In the very process of teaching and discussing unexpected opportunities emerge for making a valuable point, for demonstrating an interesting idea and for teaching a significant concept. (43)

It is this dynamic and complex character of teaching which makes the outcomes of this activity

"far too numerous to be specified in behavioural and content terms in advance".<sup>44</sup>

Thus the classroom does not readily lend itself to a mechanical view of teaching.

By eliminating the dynamic character of teaching one then regards teaching as a stable mechanistic process. J. M. Atkin has criticized the 'human engineering' approach to education and highlighted some of its side effects.

If identification of all worthwhile outcomes in behavioural terms comes to be commonly accepted and expected, then it is inevitable that, over time, the curriculum will tend to emphasize those elements which have been thus identified. Important outcomes which are detected only with great difficulty and which are translated only rarely into behavioural terms tend to atrophy. They disappear from the curriculum because we spend all our time allotted to us in teaching explicitly for the more readily specifiable learnings to which we have been directed. (45)

There is another aspect to this line of criticism which is very fundamental. It takes the form that is based on a view of education as an open-ended continuous process to which the

allocation of specific terminal objectives is inappropriate. Seeing the ends of education in terms of precise and observable changes in pupils behaviour which can be measured, raises a number of problems.

In the first place, the result of one's teaching may not be immediately obvious, it may take a long time to produce results. Denis Lawton takes up this particular point, and for example he states,

....I read some of Shelley's poetry at school, when I was 16, which I did not really appreciate until I read some Plato some years later .... (46)

This illustrates that teaching may take a long time to produce results. It also illustrates that it is a mistake to think one can specifically predict what the pupil will get out of any particular learning experience. John Holt writes,

In the last year or two I have done some work with other citizens in my home town of Boston to defeat or at least delay a bad or crooked so-called urban - development scheme. From this I have learned much about the law, politics, and economics of the city, and about the workings of the state and city governments. But I did not go into the work to learn all this, but to try to prevent my city from being robbed and ruined. (47)

Outcomes other than the particular ones anticipated are possible from learning experiences. Some may say that such learnings are fragmentary and incomplete, however, Lawton states,

The danger is that by avoiding this kind of incomplete learning we may get to the point where rote learning is valued much more than understanding in depth, especially if that understanding is incomplete. (48)

Richard Pring adopts a similar position:

What range of objectives is to be included in 'understanding mathematics'? What particular behaviours are to count as

having understood 'simultaneous equations'? Is it simply a matter of coming out with the right answers to certain sums? Is this what understanding simultaneous equations means? This does not seem likely because that behaviour might show simply good guess-work or memorization. (49)

P. H. Hirst in an article, "The Nature and Structure of Curriculum Objectives", in which he adopts the fundamental value of objectives in curriculum, but he objects to their characterization in behavioural form. His fundamental objection being:

... this view either legislates a meaning for such terms as say 'understanding' and 'appreciation' which is simply false, or it confuses understanding and appreciation with observable evidence for them .... And to achieve certain outward and visible signs as the objectives in one's teaching is all too frequently consistent with failing to achieve the state of mind desired. (50)

The task of specifying objectives in certain subjects is particularly difficult. Stenhouse in an article entitled, "Some Limitations of the Use of Objectives in Curriculum Research and Planning" writes,

In the arts, at least, a specification of content - such as Hamlet - should restrict itself to identifying a work of art, to nominating the stimulus or input, the experience to which students are to be exposed. The aim 'to understand Hamlet', is not susceptible of analysis in terms of content elements. Here, 'understanding' means to respond to or experience the concrete reality of a work of art. (51)

The specification of specific terminal behavioural objectives is, therefore, questionable. From this point Pring goes on to argue that the educational process should be seen as a process of on - going inquiry or activity rather than a process of

".. adopting behaviour or specific ways of seeing, judging, and evaluating things ... " (52)

Educational activities he says, are 'ongoing events' and 'one's conception of the inquiry or activity is altered in the very pursuit of it', so that to specify outcomes in advance is to lose sight of the nature of what one is engaged in. Charity James in her book Young Lives at Stake (1968)<sup>53</sup> makes a similar point when she argues that objectives place excessive demands on teachers and pupils, both of whom are inclined to accept them as 'given' and unquestionable, so that they lose the opportunity for active participation in the educational process. Education to use her own words is concerned with 'enquiry' and 'dialogue' and not with peripheral objectives which are the image of a factory assembly line not a school.

This, as Richard Pring points out, is what John Dewey meant when he said that education is a life long process, that our ends constantly change as we approach them and in fact are never attained<sup>54</sup>. If such a view is accepted terminal objectives would appear inappropriate. Pring's conclusion is that we should be working for agreement upon principles of procedure rather than on terminal behaviours, not with particular preconceived goals but with the norms and principles according to which we intend that pupils should act within the continuous and life long process of education.

This view of the curriculum has been operationalized in Great Britain by Lawrence Stenhouse in the Humanities Curriculum Project. The various disciplines of knowledge are placed at the disposal of the student, and their standards and principles guide their work, rather than they being channelled into

objectives conceived by the teacher. Stenhouse writes:

I am arguing then that one of the main functional advantages of the disciplines of knowledge and of the arts is to allow us to specify content, rather than objectives, in curriculum, the content being so structured and infused with criteria, that given good teaching, student learnings can be treated as outcomes, rather than made the subject of prespecifications. Disciplines allow us to specify content rather than output in the educational process. (55)

However, this does begin to highlight that decisions have to be made about the activities that the pupils are going to be engaged in. Whether we speak of principles of procedure, objectives or content itself, choice must be made on the activities that are considered desirable. In short, the value question must be faced at some stage and the basis on which we can look for a solution to problems of this kind must now be considered.

#### B. Educational Aims and Values and The Behavioural Objectives Model

This brings us to the second major criticism of the behavioural objectives model, namely that through the adoption of a scientific stance, proponents of this model avoid questions regarding the overall criteria for the selection of objectives. However, there must be some justification for the selection of one objective rather than another.

It will be the argument of this section that a concept of education is vital in selecting our purposes as teachers. And



those activities which we choose must be selected by virtue of certain intrinsic features of a kind likely to promote the development of those qualities what we would associate with the notion of an 'educated' person. This involves one in the area of ethical philosophy. John S. Brubacher writes:

Ethical considerations come up unavoidably in examining the social or political setting of the educative process, to say nothing of its religious and moral dimensions. In examining the aims of education, the motivation of learning, or the measurement of its results we are inescapably dealing with ethical problems, problems of value. Values are also an important consideration in selecting which studies shall be included in the curriculum. (56)

Questions of value have not concerned the behavioural objectives advocates, being scientists they purge themselves of such questions. (Sockett 1976)

The most influential psychologist in the field of educational objectives is Benjamin S. Bloom<sup>57</sup> who exercises a strict scientific approach in the taxonomy of cognitive and affective educational objectives. His approach makes it necessary for him to avoid all questions of value, all questions regarding the grounds on which we might choose one objective rather than another. His only criterion seems to be that the objectives are chosen from observing what is actually going on in schools or read in discussions of what should go on in schools. As J. H. Gribble states, in an article called "Pandora's Box": The affective domain of Educational Objectives, "Bloom's Taxonomy is deliberately neutral. He says that Bloom has no concept of education, so that he cannot make any comparative evaluation of objectives and cannot provide any criteria by which

decision can be made as to what will count as an educational objective. Gribble writes:

... no satisfactory account of educational objectives in either the cognitive or affective domain can be made unless it has reference throughout to what are desirable and appropriate changes . (58)

This particular problem becomes clearer when we begin to establish a concept of education and its justification. Education ultimately is about aims.<sup>59</sup> Aims, however of the educational process are concerned with something that is worthwhile and thereby are normative rather than empirical questions. According to Richard Pring, for example, aims are in essence, a statement about what a pupil should learn; the skills, attitudes, understandings and values which it is thought he could acquire from the course. Whereas objectives merely describe the intended outcomes of the teaching. He writes:

Aims indicate more abstract, general and value orientated goals, whereas 'objectives' indicate more specific descriptive goals . (50)

Specifying objectives from aims is not an easy task .

since aims involve value questions in the first place. Agreement on value questions is not likely to be a simple process. Teachers are likely to have different sets of values in regard to education, and it is not clear just how far reasoned argument and discussion can resolve such differences.<sup>61</sup>

The behavioural objectives proponents have overlooked such questions, through their emphasis upon scientifically structured

educational system. Indeed, E. F. Schumacher in his book Small is Beautiful is very critical of how our age in which the emphasis on a technological education has developed at the expense of ultimate meaning and conviction.<sup>62</sup> In support of his view he quotes from Etienne Gilson:

Such a development was by no means inevitable but the progressive growth of natural sciences has made it more and more probable. The growing interest taken by man in the practical results of science was in itself both natural and legitimate, but it helped to forget that science is knowledge, and practical results but its by-products.... Before their unexpected success in finding conclusive explanations of the material world, men had begun to despise all disciplines in which such demonstrations could not be found, or to rebuild those disciplines after the pattern of the physical sciences. As a consequence, metaphysical and ethics had to be either ignored or, at least, replaced by new positive sciences; in either case, they would be eliminated. (63)

For Schumacher education must be about something of ultimate value, and must provide some clarification of our ultimate convictions, otherwise it is of no value to man. Further, it must involve some vision of what human beings ought to be. Such a view of education cannot be derived from a psychology or a curriculum model that places ultimate emphasis on objective scientific methods. This line of thought is reflected in Kenneth Richmond's book, The School Curriculum, where he talks about curriculum planning:

.... the question 'what outcomes one desired?', necessarily precedes 'what are we going to teach?!. While planning must disclaim any assumption that the shape of things to come can be predetermined, it cannot fail to be strongly influenced by the techniques of prediction, regulation and control. Common to all the strategies of the times - operations research, critical path analysis, systems engineering - is a preoccupation with knowable ends. (64)

Schumacher would, however, be insistent that the concern with the application of high technological achievements to education would be connected with the decline of man rather than his growth and development.

A technological, scientifically neutral approach will not capture the ultimate aims of education primarily because such statements are descriptive not evaluative (Pring 1971). Such aims can only be brought about by communicating a view of life which cannot be achieved by trivializing education, that is, by attaching too much importance to teaching and evaluating what can be specifically predicted. Such aims, moreover, implies that the important aspect of the teachers work is to transmit to his pupils a true scale of values.

R. S. Peters in Ethics and Education writes:

The teacher is not a detached operator who is bringing about some kind of result in another person which is external to him. His task is to try to get others on the inside of a public form of life that he shares and considers to be worthwhile. (65)

Peters sees education not as a process that is directed at specific goals or objectives extrinsic to the activities themselves, but by certain intrusive features of a kind likely to promote the development of those qualities we would associate with the notion of an 'educated' person such as rationality, autonomy, understanding, critical awareness and so on. 66

Jerome Bruner has, at a conceptual level, argued the value of a similar view of the educational process. He summarizes



his discussion of the goals of formal education by stating,

"The training of our students in the use of mind ... with confidence, energy, honesty, and technique." 67  
 "What is learned is competence not particular performance." 68

He emphasizes the development of skill or competence in the individual, thus the emphasis is not upon the products of learning as in the behavioural approach, but rather upon the processes of learning. One paragraph from Toward a Theory of Instruction captures the spirit of the fundamental aims of education for Bruner.

Finally, a theory of instruction seeks to take account of the fact that a curriculum reflects not only the nature of knowledge itself but also the nature of the knower and of the knowledge getting process. It is the enterprise par excellence where the line between subject matter and method grows necessarily indistinct. A body of knowledge, enshrined in a university faculty and embodied in a series of authoritative volumes, is the result of much prior intellectual activity. To instruct someone in these disciplines is not a matter of getting him to commit results to mind. Rather, it is to teach him to participate in the process that makes the establishment of knowledge. We teach a subject not to produce little living libraries on that subject, but rather to get a student to think mathematically for himself, to consider matters as a historian does, to take part in the process of knowledge-getting. Knowledge is a process not a product. (69)

What schools must do is bring the pupils into contact with the ways of thinking inherent in the various disciplines of knowledge. There is nothing more central to a discipline than its way of thinking and the basic objective for the pupil is to make such a way of thinking his own whether physics, history, ways of looking at paintings or whatever. By making these disciplines his own he is enabled to use it as an instrument of his thought, according to Bruner.

Thus the way in which we develop and increase our human powers

... comes through converting external bodies of knowledge embodied in the culture into generative rules for thinking about the world and about ourselves. 70

This is the basis on which fundamental competence or skill is developed in the individual and the basis on which this conception or skill can be converted in the management of one's own enterprises.

Thus writers like Schumacher, Pring, Peters and Bruner seem to agree that ultimately education must be concerned with the development of fundamental qualities of mind and understanding. The 'qualities of mind' reveal the ultimate concerns of education and it is these principles of procedures that educational considerations must give rise to. It is precisely for this reason that the School's Council's Humanities Project<sup>71</sup> in Great Britain specifically avoided clearly defined objectives. It has accepted as a fundamental principle of its practical proposals that, since its central concern is to help pupils to handle controversial issues, the notion of education requires that this should not be tackled from a point of view of clear objectives as outcomes of involvement with such issues must necessarily be problematic; instead of objectives they have chosen to work on the basis of principles of procedure such as the desire to develop autonomous and creative thought. Teachers' and pupils' participation will inevitably change as they proceed through a variety of topics; only the overall principles of procedure or aims will remain constant.

Ultimately surely the same must hold good for other areas of the curriculum, if education is to be conceived as an ongoing process whereby pupil and indeed teachers' qualities of mind develop through participation in the educational process.

If education does not involve such participation it will merely be a process of training or indoctrinating the individual into narrowly preconceived goals.

All this casts doubt upon the role of the learning theorist, the human engineer and the behavioural objectives proponent in the educational enterprise. As Philip Jackson states,

The business of teaching involves much more than defining curricular objectives and moving towards them with dispatch; ... (72)

## CHAPTER 3

The Structure And Organization Of Knowledge

The purpose of this section will be to enquire into the nature of knowledge as an important factor in determining a theory of learning. A theory of learning inevitably embraces a view of the structure and organization of knowledge. Brubacker writes:

Just as there are different theories of truth in the curriculum, just so there are also different ways of getting to know the truth. Indeed, each conception of truth has its own peculiar theory of how truth is acquired and how learning, therefore, is conditioned. (1)

It was argued in chapter 1 that the conception of knowledge, as derived from the Realist school of philosophy, underpinned the fundamental assumptions of the behaviourist view of learning and likewise the behavioural objectives model.

1. Realist Epistemology and Education.

This epistemology assumes an objective status for knowledge, independent from the person. This objective status or essential truth of knowledge can be verified as knowledge squares with reality. That is, true knowledge is knowledge that corresponds to the world as it is. As relations are external and therefore the world exists independently of the knower, then the teacher may take the view, that there are physical facts and social customs, which constitute the realities of life, to be included in the curriculum and learned. Learning in such a case will largely be the discovery of antecedent truths. The accuracy of



what is learned will turn on how closely it corresponds to external reality.

This objective view of knowledge is represented in traditional epistemology and analytic philosophy. Learning is not a creation but a realization of absolute truth. This taken for granted world of everyday reality is rarely questioned. The role of the intellect is merely to apprehend this world. The curriculum acquaints the child with what is 'out there'. A realization of this world provides the probability on which rational action is based. This view in contemporary form is represented by such writers as Hirst<sup>2</sup>, Philip Phenix<sup>3</sup>, and King and Bownell<sup>4</sup>, and historically by Plato<sup>5</sup> in those ideas, universals and principles which embody knowledge at its highest level. Lawton<sup>6</sup> refers to these writers as representing the classical view of the curriculum, which sees the curriculum in terms of the disciplines of knowledge, through which the young members of society are inducted into the established forms of thought and understanding.

Ultimately this implies a passive view of man, Brubacher states:

"The curriculum representing the social culture, became a sort of procrustean bed for the learner. ... it is incumbent upon the school to provide a curriculum which will broaden him out and introduce him to the law and order of the universe". (7)

The curriculum is prescribed without reference to the child. The child absorbs the 'knowledge'; his mind is preoccupied with mirroring the universe of knowledge.

However, this objective view of knowledge has not been universally acceptable and an opposite metaphysic has been proposed. To the idealist and realist the accuracy of what is learned will turn on how it corresponds to external reality. If, on the other hand, this external reality is denied and the nature of the world is seen to depend somewhat on the relations or reactions of the learner to it truth will not be just a matter of accurate correspondence between reality and what is learned, but will depend in part on how the learner's reactions or activities turn out. This latter theory would imply a totally different view of curriculum, the child and the concept of learning. The curriculum would not be as easily determined and the child would not be seen as someone passive who merely absorbs knowledge. Brubacher writes:

"This view rejects the idea that subject is something that can be put in cold storage against some contingent day of use. It refuses to treat a curriculum like a deposit which is to be handed down from generation to generation as an object which can be wrapped up in a package form and handed to students. Such conceptions are too static. Rather the curriculum is thought of as dynamic." (8)

A static conception of knowledge is rejected and the learner is seen in a more aggressive active role who seeks out information. Knowledge is not seen as something 'out there' which the learner acquires rather it is something he makes his own. Geoffrey M. Esland writes;

"... objective reality as an agglomeration of phenomena external to the body has to be subjectively realized before it has any meaning." (9)

Malcolm Skilbeck <sup>10</sup> refers to this as the Romantic view of knowledge or the curriculum, and contrasts it with the classical

view as represented by the realists and analytical philosophers.

<u>ROMANTIC</u>	<u>CLASSIC</u>
Expression	Standards
Style	Structures
Diversity	Unity
Excellences	Excellence
Experience	Rationality
Sub-cultures	Culture

Standards are externally imposed by 'society', whereas expression is unique and individual; structure is concerned with established concepts and processes of disciplines, style is personal; unity is socially defined, diversity is a move away from norms and social consensus; excellence assumes one agreed set of standards, excellences assume a variety of views; rationality means working according to rules, experience implies individual freedom from rules; curriculum based on culture is monolithic, one based on sub-cultures is pluralistic.

The polarization between these two views of knowledge is further illustrated by Brubacher's concept of the universal and the individual in education. The classical as an education representing the universal is seen as an education;

... which stresses what is common or essential to all human nature. ... Instead of teaching children how to adopt themselves to the particular environment in which they live, a too narrow objective, education will teach them to adjust to any clime or epoch. For the same reason, what is universally applicable will justify a prescribed rather than an elected curriculum. (11)

The universal has a primordial existence, therefore, it cannot be the product of the human mind rather it is discovered by it. The opposing view, however, sees

... individuality rather than universality, conflict rather than harmony, as more truly generic traits of reality... A educational philosophy constructed from this point of view will leave its own distinctive impress on educational purposes. In place of making the school a procrustean bed for the child, will bend every energy toward individualizing instruction both as to curriculum and as to method. The indigenous experience of the child rather than the universality of reason will become the measure of educational practice. (12)

However, it was the realist, objective epistemology that provided the underpinning rationale for the behaviourist school of psychology and also the behavioural objectives model of curriculum planning. Brubacher, when discussing educational measurement and evaluation refers to the realist epistemology as the storage or warehouse theory of learning

... which, on the whole, has been accepted as the basis of scientific measurement by its proponents. Their chief contribution has been to render the application of theory more exact, for in spite of the rather external character of the curriculum implied by the storage concept, judgement of its mastery has been very subjective and hence unreliable. Consequently, the scientific measurement movement has recommended itself to teachers chiefly because of the objectivity and reliability it has introduced into assaying the educative process. (13)

The empirical concern for what can be objectively studied has been the dominant paradigm in educational research and in the social sciences generally. It has already been seen how important it is in behaviourism and the behavioural objectives model. Geoffrey M. Esland, in an article based on material presented for the degree of M.A. at the University of London and published in Knowledge and Control (Ed.) Michael D. Young (1971), refers to this as the 'scientific epistemology' <sup>14</sup> and writes that it began with Bacon's 'Idols' (in Novum Organum 1620) and continued to reverberate during the 19th century,

through utilitarianism and positivism and into the twentieth century through logic, analytic philosophy and behaviourism. In one form or another, it was the dominant social and political concept of the Western world. It inevitably created the validational parameters of the social sciences - particularly psychology - and has led to the persistence of the objectivistic scientism which lies at the heart of much modern empiricism. (15)

This is a very serious epistemology.

It turns everything including man himself into an object of inquiry. As an epistemology it can study the world in no other way. The element of human subjectivity is by definition outside science. (16)

However, the value of this scientific epistemology in relation to human research is presently being questioned by a number of writers. Esland for instance, regards it as basically dehumanizing in that it ignores the intentionality and expressivity of human action. He writes:

"Such a view implicitly presents man as a passive receiver, as a pliable, socialized embodiment of

external facticities. He is represented not as a world - producer, but as world - produced. We have, therefore, a reified philosophy in which objectivity is autonomized and which does not regard as problematic for the constituency of the object its constitution in the subjective experience of individuals . (17)

Esland is among those within sociology who argue that a new perspective from the scientific epistemology is required to explain adequately the human organism. The traditional explanation within sociology - structuralism / functionalism - with which Esland is critical can be clearly seen in such work as The Sociology of Education by Olive Banks. <sup>18</sup>

In her book, Banks attempts to relate social class, educational achievement with McClelland's achievement motivation concept. She notes that the consistent tendency of working class children to perform less well at school and to leave school earlier than middle class children, even when ability is matched, needs explanation. Clearly this is true, but as we shall see the kind of explanation offered by sociologists working within this framework of structuralism functionalism has been causal in nature, because of the kind of assumptions they have taken.

Banks draws upon a wide range of sociological research that has attempted to relate social class to educational achievement. However, she fails to find a clearly defined relationship, which she attributes either to methodological weaknesses in the studies or insufficient methodological evidence. But surely to find a causal relationship in human behaviour is to adopt an inappropriate model. This approach omits reference to the

child's personal interpretations of the situation in which he finds himself, the meanings he attaches to it and his own intentions. Human beings must be considered purposive organisms. To accept that because a child is born of a certain family that his aspirations, attitudes and achievements are thereby determined is to accept a highly pessimistic, deterministic view of man. The model is very similar to the behaviouristic model in that it strips the child of his own understandings, interpretations and intentions. If we view children as being capable of purpose and intention and in view of the problems highlighted in the previous chapter regarding behaviourist psychology it seems that a new theoretical perspective for the study of human affairs is required. The main purpose of this paper is to raise questions about the way children learn, it seems essential that consideration must be given to the way children interpret their experience in the school, since although they may share common experiences at school, they do not necessarily see the same meanings because of the different latent cultures they bring with them from the outside. Unless the teacher can understand something of the way children experience and interpret the world, he will hardly be in a position to aid them in their learning.

There are very definite signs within sociology that such new perspective is emerging.

## 2. Alternative Conception Of Human Research.

The new paradigm that is emerging within sociology challenges what Esland calls the 'epistemological sufficiency of object-

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ivism', and in so doing it attempts to establish a different perspective which regards the individual as an 'active agent making sense of and coming to terms with the world in which he lives'<sup>20</sup>.

This new sociological paradigm - generally referred to as phenomenology - is opposed to any kind of mechanistic view of human behaviour, rejecting all forms of determinism whether biological, psychological, social or cultural.

Within the sociology of education, the new direction has been pioneered by Hargreaves (1972), Young (1971), Esland (1971), Keddie (1971), and Lacey (1970). Much of their inspiration has been derived from the phenomenological sociologist Alfred Schutz. However, it would seem that they have much in common and that they owe a debt to the synthesis made by Berger and Luckman (1967).

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In rejecting a mechanical view of man, the phenomenologist sees man as creatively and actively developing his own perceptions. The essential quality of man that frees him from the determination of the natural world is his ability to engage in symbolic communication, the significance of which is to be seen whereby men through symbolic communication learn to take the role of the other. In these terms social structure is seen as human construction, resulting from the consciousness of people, which acquire in their socialization a 'sense of social structure', and through their interpretative action in the social world reproduce it.

To the phenomenologist, however, consciousness is not some entity that is amenable to scientific research like objects in



the physical world. Rachel Sharp and Anthony Green state:

Consciousness refers to the particular subjective way the individual has internalized the reality of the external world, to use the Ethnomethodologist's terms, 'negotiated reality is accomplished'. (21)

Clearly such an approach to reality is very different from the one that sees societies as embodying mechanistic terms or causal relationships. Further Sharp and Green summarize the essence of phenomenology as follows:

The stress within this perspective lays on the creative knowing subject and his ability through symbolic communication with others to create both himself and his world brings the individual right into the forefront of history and society. The rejection of mechanistic determinism makes the search for causal regularities either at the psychological level or at the social level inappropriate. (22)

Moreover this perspective avoids any attempt to reify society rather society must be dereified, the sociologist must proceed through 'the subtle texture of meaning which constitutes social reality'.<sup>23</sup>

The motivation for this perspective springs, as John Eggleston writes, from the concern

... for the fundamental distinction between the scientists and the social scientists. Human beings are neither consistently logical nor reliable predictable in their behaviour. (24)

Similarly, E. F. Schumacher in his book Small is Beautiful, gives a very interesting account of how the assumption of most social science research that human behaviour can only be explained as causal relationships is inappropriate at the human level. He postulates and argues that research problems

in the physical world are convergent, in that they ultimately answer to the laws of cause and effect. When convergent problems have been solved, the solution can be written down and passed on to others, who can apply it without needing to reproduce the mental effort necessary to find it. But, on the other hand, such is not the case with human problems.

Schumacher writes:

If this were the case with human relations - in family life, economics, politics, and so forth, - well I am at a loss to finish the sentence. There would be no more human relations only mechanical reactions. (25)

Further he states:

The true problems of living - in politics, education marriage, etc. - are always problems of overcoming and reconciling opposites. They are divergent problems and have no solution in the ordinary sense of the word. They demand of man not merely the employment of his reasoning powers but the commitment of his whole personality. (26)

Because human problems are by their nature so elusive, they cannot be understood in a mechanical way. If tackled thus we "lose the very quality of human life". (27)

It is because of this that the phenomenologist proposes an alternative method of sociological inquiry. The essence of this phenomenological approach can be seen in the sociology of knowledge which directly challenges the theoretical sufficiency of objectivism and positivism.

However, before the sociology of knowledge is examined, a world of caution regarding this new sociological method is required. Rachael Sharp and Anthony Green in their book

Education and Social Control (1975) offer very important criticisms of this approach. They consider phenomenology and structuralism / functionalism as two extreme positions neither of which can satisfactorily cope with sociological inquiry. They reject the mechanistic account because it fails to give any autonomy to the individual.<sup>28</sup> However, their criticism of phenomenology is more complex.

They argue that the solution to the proper understanding of sociological inquiry is not only more complex than either of these solutions may suggest, but it is also suggested by such writers as Lukacs, 1971; Korsch, 1970; Goldmann, 1969; Altmusser, 1970; Gowdelier, 1972;<sup>29</sup> Their solution is particularly original and important. They argue that one of the problems that they are faced with is that the debate regarding the relationship between 'consciousness' and 'reality' has been conducted at a highly abstract and theoretical level. And they are suggesting that some insights might be gained by bringing the debate down from the formal level to substantive empirical reality. This is not, however, they argue,

... to advocate an empiricist approach to the resolution of fundamental metatheoretical issues. Such an attitude would be absurd. Rather it is suggested that through about particular empirical problems might help to clarify one's conceptualization of the philosophical problematics. It is on this premise that our work has proceeded'. (30)

From their own work they argue, that in relation to the negotiation of reality, the problems of power will be seen to be crucial. In relation to education, for instance, they argue that we need to see the actors in this situation not as free and equal participants engaged in the social exchange we call

education, together building up in an open context some mutually acceptable definition of reality but, in terms frequently, of actors with varying degrees of power to define reality to others.

Sharp and Green write:

"What seems to be crucial is whether in the last analysis one can control others and bring sanctions to bear against others, irrespective of their definition of reality. And the ability to do this derives not from language, the system of symbolic meanings itself (Gerger and Luckmann, 1967), but from the distribution of power and authority in the macro-structure. The precise relationship between different forms of power is empirically problematic in any given situation". (31)

This need not, however, detain us any longer as the resolution of as yet unresolvable theoretical dilemmas <sup>32</sup> is not the purpose of this paper. But, in the context of the present discussion it is important merely to point out that while the phenomenologist approach is not any kind of social science panacea, it is important in that it focuses on the concept of the individual rather than on some concept of 'society'. And further the emphasis upon the individual and how he perceives reality must be important in the context of a discussion on learning, as learning is ultimately in itself an individual act.

### 3'. The Sociology of Knowledge.

It has been suggested in this chapter that the phenomenological method has been proposed by those who regard traditional 'scientific' approaches to human research as essentially inappropriate. In particular, in relation to the sociology of

education phenomenologists disagree with the assumptions of such structuralist / functionalist writers as Olive Banks and her interpretation of the relationship between social class and education.

In criticism of this kind of work Michael F. Young writes:

It would not be doing these studies an injustice to say that they developed primarily from a sociological interest in stratification in the narrow sense rather than education. They were concerned to show how the distribution of life chances through education can be seen as an aspect of the class structure. Inevitably this led to an over - mechanistic conception of 'class' which isolated the 'class' characteristics of individuals from the 'class' content of their education . (33)

The structuralist /functionalist perspective poses as unproblematic the character of the education that the working class child failed at. To the phenomenologist questions, such as 'what it is to be educated' and how knowledge is organized within schools, must not be taken as given but rather posed as problematic. Young writes:

... there is no alternative but for the sociologist to 'make' his own problems as phenomena to be explained; that is, not just to criticize earlier sociological research, but to ask what implicit assumptions led some questions (about selection) to be asked and others (about academic education) to be treated as given. It is suggested that in this way, certain fundamental features of educators' world are taken for granted, such as what counts as educational knowledge, and how it is made available, become objects of enquiry. (34)

In challenging the assumptions that have been taken for granted by traditional sociological research, Young and others within this school are primarily interested in posing as problematic the nature of knowledge. Knowledge cannot be taken as given

as in the realist view rather it must be the subject of inquiry.

What counts as knowledge in society is thereby questioned by those interested in the sociology of knowledge. The sociology of knowledge holds that our view of knowledge is to some extent socially determined; that is, the philosophical analysis of knowledge itself is not uncontaminated by the kind of society in which it originated. Thus as Lawton<sup>35</sup> points out the two basic notions to the sociology of knowledge are first, reality is not universally perceived in the same way, second that within a given culture different members have differential access to knowledge which is related to their position in the social structure.

Peter Berger and T. Luckmann in their book The Social Construction of Reality (1967), provide a clear account of what is meant by the sociology of knowledge. Though they were not concerned in their book to apply the sociology of knowledge to education, it has proved, nevertheless, very influential in this regard.

One of their main contributions was to consider that "the sociology of knowledge must concern itself with everything that passes for knowledge in society".<sup>36</sup> On the other hand academic knowledge only provides a very limited view of reality. There is a range of knowledge in society from the common-sense everyday knowledge to theoretical knowledge. As Peter Berger has suggested and summarized by Geoffrey Esland:

This will not be a one - dimensional or uniform - quality knowledge, but will be a composite of different kinds of

of knowledge corresponding to how they are distributed in the different levels of consciousness - broadly distinguished as pre-reflective (or enactive), pre-theoretical, and theoretical". (37)

The sociology of knowledge, then is concerned with the relation between human thought and the social context within which it arises. Knowledge, according to Berger and Luckmann is related to social structure in terms of different views of reality. How this reality is perceived is of central importance to Berger and Luckmann.

The institutionalized world has an objective reality, its history predates the birth of the individual. This history itself, has a character of objectivity.

The institutions, as historical and objective facilities confront the individual as undeniable facts. The institutions are there, external to him, persistent in their reality, whether he likes it or not. He cannot wish them away. (38)

Since institutions exist as external reality, the individual cannot understand them by introspection. He must go out and learn about them, just as he must learn about nature. However, the objectivity of the external world, according to Berger and Luckmann, no matter how massive it may appear to the individual, is a humanly constructed reality.

This process by which the externalized products of human activity attain the character of objectivity is objectivation. The institutionalized world is objectivated human activity". (39)

The institutionalized world is objectivated human activity, that is despite the objectivity that marks the social world in human experience, it does not thereby acquire an ontological existence apart from the human activity that produced it. Reality is thereby socially constructed.

... it is important to emphasize that the relationship between man, the producer and his social world, is and remains a dialectic one. That is, man (not of course in isolation, but in his collectiveness) and his social world interact with each other. (40)

Society, therefore, according to Berger and Luckmann exists as both subjective and objective reality. The objective will be realized differently by each individual simply by virtue of being a specific individual with a specific biography. Thus this reality will "have relevance both to the man in the street and to the philosopher". <sup>41</sup>

Thus Berger and Luckmann believe that "the sociology of knowledge must concern itself with everything that passes for knowledge in society". <sup>42</sup> It follows from this that theoretical formalations of reality, whether they be scientific or philosophical do not exhaust what is 'real' for the members of a society.

Since this is so, the sociology of knowledge must first of all concern itself with what people 'know' as 'reality' in their everyday non - pre-theoretical lives (43)

This view of knowledge has important implications for the educational enterprise. It rejects the realist view of knowledge, in terms of theoretical systems and disciplines, as being an incomplete view of reality. A school thereby that would emphasize academic knowledge solely would have a limited view of reality. And thereby would be concentrating on a reality that is very different from the range of reality from academic knowledge to everyday understanding. It would be an emphasis on what Brunbacher called 'universals' as opposed to 'individuals'. <sup>44</sup> To the sociology of knowledge adherent, knowledge only exists as it is inter-subjectively realized by each individual. Berger and Luckmann writing about this intersubjective realization of the external world state:



"I know that my natural attitude to this world corresponds to the natural attitudes of others, but they also comprehend the objectifications by which this world is ordered, that they also organize this world around the 'here and now' of their being in it and have projects for working in it. I also know, of course, that the others have a perspective on this common world that is not identical with mine. My 'here' is their 'there'. My 'now' does not fully overlap with 'theirs'". (45)

The manner in which this world is realized is very important to the phenomenologist. Each individual must personally and in his own way realize this world. Because of the subjective element inherent in its realization, the phenomenologist seems to be emphasizing something of what Skilbeck<sup>46</sup> has said about expression, style, diversity, excellences, experience, sub-cultures as the essential characteristics of knowledge acquisition.

And further, this sociological perspective seems to suggest that there is much more to the educational process and to an understanding of human learning than mere objective observable behaviour. This point becomes clearer, when something more is said about how the phenomenologist views the internalization of reality or knowledge by the individual.

To the phenomenologist the realization of the external world can only be achieved meaningfully through the existentialist experience of the individual. Each individual actively comes to terms with experience.. This is, of course, a clear challenge to the conception of knowledge held by traditional epistemologies and positivism. Geoffrey Esland writes:

"One of the fundamental points of this study is that objective reality as an agglomeration of phenomena external to the body has to be subjectively realized before it has any meaning." (.47)

As knowledge is no longer seen as objective and external, but rather as problematic and subject to individual interpretation, Esland writes,

"the focus, therefore, is now diverted from how man absorbs knowledge so that he can replicate it to how the individual creatively synthesizes and generates knowledge,..." (.48)

This epistemology as Young writes is unlike the view of learning theory - a view that has dominated the experimental psychology of learning - in "that it incorporates a dialectic view of man as a world producer as well as a social produce"<sup>49</sup>. This thereby denies any attempt to reify society. Reification of social reality would destroy the infinitive variety and 'humanness' of learning.

"... reification can be described as an extreme step in the process of objectivation, whereby the objectivated world loses its comprehensibility as a human enterprise and becomes fixated as a non-human non-humanizable inert facticity, (50).

Reification, however is the dominant paradigm that runs through positivistic philosophy, much of empirical sociology and behaviourist psychology. Within this perspective the individual is stripped of his purposes and intentions and fundamentally his existentialist experience in coming to terms with reality is denied.

Such a view of the acquisition of knowledge is essentially

the same as the existentialist philosophical outlook. The existentialist like the phenomenologist challenges the value of a positivist outlook in the social sciences. Van Cleeve Morris, an existentialist writer, states,

"The reluctance of empiricist and positivist philosophies to take existence seriously stems, of course, from the fact that existential phenomena - awareness, feelings, anguish in many forms - do not yield to a scientific logic". (51)

The existentialist advocates a view of man that transcends any objective inquiry. Essential to the human is its uniqueness as distinct from the subject of the natural sciences. Such a concept of man implies liberty, responsibility and commitment. Moreover, within existentialist philosophy people are considered to be basically forwardly active organisms. Hence education should promote each student's heightened awareness and the artistic expression of his self-actualization. Accordingly Van Cleeve Morris writes:

"... the task of education can be stipulated somewhat as follows: to provide the occasion and circumstances for the awakening and intensification of awareness". (52)

The existentialist stresses three basic human awarenesses:

"The teachers imperative is to arrange the learning situation in such a way to bring home the truth of these three positions to every person". (53)

These three awarenesses are: I am a choosing agent; I am a free agent; and I am a responsible agent. In his teaching, the teacher awakens awareness, freedom and responsibility in each of his students. Ralph Harper writes:

"No school has a right to be proud of its educational aims if it does not take into account this most important area of human experience and inquiry". (54)

To Van Cleeve Morris this type of education must be discovery orientated. 'To become more specific and concrete, education must be an act of discovery'. (55). This discovery must be the 'discovery of responsibility', in that the learner discovers personal meaning or significance in his learning. Morris writes:

•Let education be the process by which we awaken in each learner the truth that he is responsible for his every desire to flee responsibility.. (56)

The child must be thus involved in his education. To the existentialist involvement means the experience of getting personally implicated in the situations of life. This is why education must be discovery. Further such a view is, opposed to what Morris calls the 'spectator theory' of the realists. The existentialist view knowledge "not from the standpoint of the spectator but from the standpoint of the actor, on stage and actively implicated in the "role of man". (57) Thereby the curriculum is not something to be mastered rather it is something to be experienced. Therefore Morris equates educational method with the Socratic paradigm in Plato's Republic and The Thatus. In these dialogues Socrates was 'seeking after' truth that he did not understand. This according to Morris, is existentialist teaching. He states:

We must revive the Socratic paradigm ... in the mode of The Republic. And I do not mean that the existentialist teacher is always searching for new truth in the manner of the "serious" research scholar. Rather, he is searching for personal truth. Personal truth is always new to the individual searching for it

himself; and, for that matter, it is always new to the teacher also.

Thus if we accept the Socratic paradigm, the teacher will concentrate on asking the questions to which he does not know the answer. In the most literal and profound of ways, he will learn along with his students. (58)

Therefore the teacher - pupil relationship becomes more of a collaborative learning experience based on mutual respect rather than domination. The need for this kind of attitude on the part of the teacher has been sensitively described by Paulo Freire in Pedagogy of the Oppressed. He writes:

Authentic education is not carried on by A for B or by A about B, but rather by A with B, mediated by the world - a world which impresses and challenges both parties, giving rise to views or opinions about it. (59)

Authentic education to Freire is very similar to the existentialist view. He is a very strong critic of education based on any kind of realist philosophical world view,<sup>60</sup> which he refers to as the 'banking concept' of education in that it merely 'deposits' information in the individual without any consideration of his own experience in coming to understand the knowledge. Rather than this static type of education, Freire proposes a problem-solving education where,

....men develop their power to perceive critically the way they exist in the world with which and in which they find themselves; they come to see the world not as static reality, but as a reality in process, in transformation. Although the dialectical relations of men with the world exist independently of how these relations are perceived (or whether or not they are perceived at all), it is also true that the form of action men adopt is to a large extent a function of how they perceive themselves and the world without dichotomizing this reflection from action, and thus establish an authentic form of thought and action. (61)

What writers similar to the phenomenologist, the existentialists and Freire are aiming to achieve is that the educational focus be diverted from the ways pupils absorb a static reality to a concept of education that personally challenges and actively involves each pupil in the learning process. In such a view the subjective experience of the individual is of central importance.

If educational learning is seen in such terms, then surely behavioural technology whether in the form of learning theory or applied in the behavioural objectives model or any other such scientific epistemology cannot be of great relevance to the teacher.

The fundamental point of importance is that the existentialist view of education is by its nature unconcerned with outcomes, to channel the child into preconceived goals would destroy the essence of the educational experience. And this is precisely the point the Eisner and also Stenhouse have made about pre-specifying outcomes in the area of artistic subjects - something which has been dealt with in the previous chapter. Eisner, who has written a paper on the value of behavioural objectives in education, has argued that the limitations of this approach to education can especially be seen in the area of artistic subjects. He writes:

In the arts and in subject matters where, for example, novel or creative responses are desired, the particular behaviours to be developed cannot easily be identified. Here curriculum and instruction should yield behaviors and products which are unpredictable. The end achieved ought to be something of a surprise to both teacher and

the pupil. While it could be argued that one might formulate educational objective which specified novelty, originality, or creativeness as the desired outcome, the particular referents for these terms cannot be specified in advance; one might judge after the fact whether the product produced or the behaviour displayed belongs to the "novel" class. (62).

Similarly Stenhouse has argued how irrelevant it is to attempt to prespecify the outcomes from such an exercise as the study of Hamlet <sup>63</sup>.

Eisner and Stenhouse can be seen in a similar way to the existentialist view in that they see educational outcomes as complex and flexible, and prespecification of educational outcomes is merely to destroy the whole purpose of human learning. To them education is about the development of certain sensibilities and levels of understanding which belie the idea of the scientific researcher. The content of education cannot be seen merely as instrumental, rather it is something of intrinsic worth. <sup>64</sup> Interestingly it was from this perspective that Stenhouse advocated the use of the form or principle model, referred to in the last chapter, as the basis of an alternative view of the curriculum from the behavioural objectives model.

Mrs. Charity James also reflects the existentialist concern for the true involvement of the child in the educational learning experience. She directed a curriculum development in London in early 1970's and subsequent to her involvement in the project, she has published her views regarding curriculum and, in particular, in relation to the role of behavioural objectives in the curriculum process.

She is particularly at pains to point out that behavioural technology with its emphasis on observable performance tends to neglect the personal experience of the individual. She writes regarding the behavioural objectives model:

Having taught us to analyze the person into dissecta membra it tempts us to think of some splendid person of the future whom we might create rather than the adolescent who is trying to communicate with us here and now. (65)

She feels that to see education in terms of discrete steps and independent units is to lose sight of the essential wholeness of human learning.

The pupil needs to be not only literate and numerate, but capable of self-direction of effort, able as circumstances require to use his gifts for co-operation with his fellows and to make fruitful contribution to the insistent present and the challenging future. An education that divides the "seamless coat of learning" makes for not only an impoverished and fragmented understanding of the world and mankind, but also implicitly denies to the individual the means of developing an integrated personality. (66)

The way to bring this about is by means of Enquiry.

As a start we suggest Enquiry as the basic concept. We suggest this not merely as a technique but as the essence of the curriculum (67)

Placing enquiry as the essence of the curriculum shifts the emphasis from instructing to active exploration. Seeing learning as an active process has implications for the teacher's conception of his role.

The role of the teacher will be to enable the children to choose broad lines of enquiry and decide which are significant and which subsidiary problems. At other times it will be to provide the trigger or catalyst for



enquiry, or to show some of the ways in which enquiry might develop... . He will learn when and how to help them (i.e. the pupils) to extricate themselves from their predicament, analyse where they went wrong and find out how to choose a more fruitful path. (68)

Further the concept of enquiry has important implications for the concept of learning. It places emphasis upon learning in terms of the child actively seeking information. This is necessarily derived from a fundamentally different epistemological base than the realist view. John S. Brubacher writes:

This view rejects the idea that subject matter is something that can be put in cold storage against some contingent day of use. It refuses to treat the curriculum like a deposit which is to be handed down from one generation to another generation or as an object which can be wrapped up in package form to be handed to students. Such conceptions are too static. Rather is the curriculum to be thought of as dynamic. (69)

This approach avoids any imposition by the teacher, which in the view of the existentialists, the phenomenologists and such curriculum planners as James, Eisner, and Stenhouse, would be indoctrination and likely to inhibit the real learning potential of the pupil. Knowledge is only true and important to the individual in so far as it passes into his subjective consciousness.

These writers, therefore, place considerable importance upon the child and the means whereby his intellectual development is seen as a process of his active organizing and arranging the external world. Further support for this kind of view has come more recently from the work of those psychologists such as Piaget and Bruner who have explored the process of conceptual development and in so doing have come forward with a new view of intelligence. This will be the subject of the next chapter.

## CHAPTER 4

Cognitive Psychology

It has been suggested in the previous chapter that a new paradigm is required for the study of man as an alternative to behaviourist psychology in particular, and the rigorous scientific study of man in general. Evidence within sociology has been cited as an indication that such a paradigm is beginning to emerge. This view is tending towards the adoption of an existentialist view of man and society and how man understands himself and others. These views are reflected in the sociology of Berger and Luckmann and the phenomenologists generally.

The existentialist view of man is opposed to the traditional philosophies which regard the acquisition of knowledge as an act of grasping some external object. In traditional philosophy what is known lies outside the learner and in the act of learning the individual comes into possession of the known for the first time. While for the existentialist the relationship between man and the external world is not some kind of juxtaposition as exists between two radically different worlds, rather the relationship is a Dialectic one. The external reality is only meaningful to the individual in so far as he subjectively takes hold of it and puts it into his own life.

1. Brunerian Psychology

The psychological theory concerning knowing and learning as written about by Bruner is akin to the dialectic scheme of the existentialist. Bruner's emphasis on the construction of thought forms through sensory and linguistic ordering amounts to what Esland calls an 'incipient phenomenology' !

Although Professor Bruner seems not to have developed a systematic learning theory as such, a generalized theory about, and outlook concerning, learning is implicit in his various works. His principal concern has been with the means whereby people actively select, retain and transform information, and this is the essence of learning.

In his psychology Bruner rejects behaviouristic environmental determinism without getting involved in any kind of opposite and extreme mystical vitalism. His own work in the middle and late 1950's led him to conclude that

subjects do not mechanistically associate specific responses with specific stimuli, but rather tend to infer principles or rules underlying the patterns which allow them to transfer their learning to different problems".<sup>2</sup>

On the overall two unifying themes recur in Bruner's writings. First that learning or the acquisition of knowledge is an active process and second that a person actively constructs his knowledge through his relating incoming information to a previously acquired frame of reference.

Models of the world and learning. Bruner makes much of the structural models of the world within which a culture equips its members. Such models enable persons to predict, interpolate, and extrapolate further knowledge. He states:

Our knowledge of the world is not merely mirroring or reflection of order and structure 'out there' but consists rather of a construct or model that can so to speak, be spun a bit ahead of things to predict how the world will be or might be. (3)

Instead of being driven in some mechanistic fashion the child

... first learns the rudiments of achieving his intentions and reaching his goals. En route he acquires and stores information relevant to his purposes. In time there is a puzzling process by which such purposefully organized knowledge is converted into a more generalized form so that it can be used for many ends. It then becomes "knowledge" in the most general sense - transcending functional fixedness and egocentric limitations. (4)

Models in essence are expectancies. Bruner states that through the use of models man can not only deal with the information before him,

but go far beyond the information given - with all that this implies both for swiftness of intellect and for fallibility. Almost by definition, the exercise of the intellect, involving as it must the use of short cuts and leaps from partial evidence, always counts the possibility of error. (5)

Hence, the person learns about the world in a way that enables him to make predictions of what comes next by matching what is presently experienced to an acquired model and reading much from the model. Thus Bruner writes,

The eighteenth-century assumption that knowledge grows by a gradual accretion of associations built up by contact with events that are contiguous in time, space or quality does not fit the facts of mental life. There are spheres where such associative laws operate within limits, as, say, with material that is strange and meaningless ..., but for the most part organization is a far more active process of imposing order - as by forming a hypothesis and checking it to be sure. (6)

Learning as a cognitive process. Bruner sees learning as involving three 'almost simultaneous processes', namely (i) acquisition of new information, (ii) transformation of

knowledge and (iii) checking the pertinence and adequacy of knowledge.<sup>7</sup> New information may be a refinement of previous knowledge or it may even run counter to what a person has already known explicitly or implicitly. For example, one way teach Newton's laws of motions which violate the evidence of the senses. In transformation of knowledge, knowledge is manipulated in order to fit new tasks. We learn to "unmask" or analyze information, to order it in a way that permits extrapolation or interpolation or conversion into another form. Transformation emphasizes the ways we deal with information in order to go beyond it. The third aspect of learning, evaluation, involves checking whether the way we have manipulated information is adequate to the task.

Bruner labels this view of learning or cognitive growth as 'instrumental conceptualism'<sup>8</sup>. This view is based according to Donald L. Bigge, on two tenets concerning the nature of the knowing process: (i) a person's knowledge of the world is based on his constructed models of reality, and (ii) such models are first adopted from one's culture, then they are adopted to one's individual use<sup>9</sup>.

A person's perception of an event, then, is essentially a constructive process within which the person infers a hypothesis by relating his sense data to his model of the world and then checks his hypothesis against additional properties of the event. So, a perceiver is viewed not as a passive reactive organism, but rather as a person who actively selects information, forms perceptual hypotheses, and on occasion

distorts the environmental input in the interest of reducing surprize and attaining valued goals.

Bruner writes about this view of perception:

It takes the form in ordinary experience of data being interpretable only in the light of the hypothesis one brings to bear upon it. This is essentially the hypothesis theory of perception (see Bruner, 1975; F. H Allport, 1961) whose central premise is that it is the processing of data that yields significance, not its receipt. (10)

Thus much of perception involves going beyond the information given through reliance on a model of the world of events that makes possible extrapolation, interpolation and prediction.

A person's maturing intellect or cognitive growth is characterized by the increasing independence of his responses from the immediate nature of sense impression. Such growth is dependent upon the individual internalizing the ability to develop and use "tools" or "instruments" or "technologies" <sup>11</sup>. These tools make it possible for him to express and amplify his cognitive powers.

Such development is seen by Bruner in terms of an evolutionary perspective. He sees man's technological progress as having produced three systems which act as amplifiers of human capacities. There are amplifiers of human motor capacities (for example, a knife), amplifiers of human sensory capacities (a wireless or radar), and amplifiers of human thought processes (from language to myth to scientific theories). He distinguishes three of these systems of skills that correspond to the three major tool systems to which man must link himself for the full expression of his capacities. These three systems of skills

are Bruner's modes of representation and he identifies three modes of representation of reality as enactive, iconic and symbolic <sup>12</sup>. The presence of enactive and iconic indicate that the data of the here - and - now experience may or may not be referred to the interpretational schemes provided by the linguistic ordering of symbolic knowledge. The power to transcend the here and present lies in the possibilities of extrapolation which lie in the manipulation of symbols. Therefore, the strength of the mode of representation or 'referral system' is critical for the development of this power.

Bruner uses the study of a balance beam to illustrate the distinction between the three modes of representation:

A quite young child can plainly act on the basis of of the "principles" of a balance beam, and indicates that he can do so by being able to handle himself on a see-saw. He knows that to get his side to go down farther he has to move out farther from the center. A somewhat older child can represent the balance beam to himself either by a model on which rings can be hung and balanced or by a drawing. The "image" of the balance beam can be varyingly defined, with fewer and fewer irrelevant details present, as in the typical diagrams in an introductory textbook in physics. Finally, a balance beam can be (symbolically) described in ordinary English, without diagrammatic aids, or it can be even described mathematically by reference to Newton's Law of Movements in inertial physics. (13)

Therefore the acquisition of knowledge is not simply a progressive movement from enactive (or concrete operations) to symbolic (formal operations); rather "it occurs through the routinization of referral sequences and their further elaboration into epistemologies". <sup>14</sup>

Thus Bruner modifies Piaget's stages of development somewhat by suggesting that an epistemology operates at different

levels of consciousness and therefore produces different 'textures' of knowledge. Bruner writes:

It is not that there are "stages" in any sense; rather there are emphases in development. You must get the perceptual field organized around your own person as center before you can impose other, less egocentric axes upon it, for example. In the end, the mature organism seems to have gone through a process of elaborating three systems of skill the correspond to the three major tool systems to which he must link himself for full expression of his capacities - tools for the hand, for the distance receptors, and for the process of reflection (15).

Central to this epistemology is a view of human learning as being derived from a dialectic relationship between consciousness and socially approved knowledge. Bruner states that man's very evolution as a species speaks to this point.

It was consequent upon the development of bipedalism and the use of spontaneous pebble tools that man's brain and particularly his cortex developed. It was not a large-brained hominid that developed the technical - social life of the human; rather it was the tool - using, cooperative pattern that gradually changed man's morphology by favoring the survival of those who could link themselves with tool systems and disfavoring those who tried to go it on big jaws, heavy dentition, or superior weight. What evolved as a human nervous system was something then, that required outside devices for expressing its potential. It was a swift progress. The first primitive primates appeared five million years ago and man reached his present morphology and brain size about half a million years ago - with the major development of higher hominid to tool - user occupying probably less than half a million of years between. From then on the major changes in the species were, ... by prosthetic devices, by man's learning how to link himself to amplifiers of his muscles, of his senses, and of his powers of ratiocination. (16)

This view of human learning dereifies both the child and knowledge. It also calls for a revision of objectivistic assumptions about human intelligence. It alters our thinking



about intelligence from that implied in the psychometric model.

As John Holt expressed it:

Unintelligence is not what most psychologists seem to suppose - the same thing as intelligence only less of it. It is an extremely different style of behaviour arising out of an entirely different set of attitudes. (17)

Bruner himself outlines the characteristics of this epistemology in Towards a Theory of Instruction:

I suspect that much of growth starts out by our turning around on our traces and recording in new forms, with the aid of adult tutors, what we have been doing or seeing, then going on to new modes of organization with the new products that have been formed by these .... The new models are formed in increasingly powerful representational systems. It is this that leads me to think that the heart of educational process consists in providing aids and dialogues for translating experience into more powerful systems of notation and ordering. And it is for this reason that I think a theory of development must be linked both to a theory of knowledge and a theory of instruction, or be doomed to triviality. (18)

## 2. New Classroom Pedagogy.

Basil B. Bernstein (1971) has suggested that when a methodology based upon Bruner's epistemology is applied to teaching "the pedagogy is likely to proceed from the deep structure to the surface structure".<sup>19</sup> According to Bernstein there are two broad types of curriculum namely a collection type and an integrated type. He understands the collection type as one where,

... contents stand in a closed relation to each other, that is, if the contents are closely bounded and insulated from each other, I shall call such a curriculum a collection type. Here, the learner has to collect a group of favoured contents in order to satisfy some criteria of evaluation. (20).

While integration, as it is used by Bernstein, "refers minimally to the subordination of previously insulated subjects or courses to some relational idea, which blurs the boundaries between subjects". 21

The collection code involves an hierarchical arrangement of knowledge, such that the ultimate mysteries of the subject is revealed very late in educational life. By the ultimate mystery of a subject Bernstein suggests is its potential for creating new realities. It is also the case, and this is important, that the ultimate mysteries of a subject is not coherence, but incoherence; not order but, disorder; not the known but the unknown. Bernstein writes:

As this mystery, under collection codes is revealed very late in educational life - and then only to a select few who have shown the signs of successful socialization - then only the few experience in their bones the notion that knowledge is permeable, that its orderings are provisional, that the dialectic of knowledge is closure and openness. For the many, socialization into knowledge is socialization into order, the existing order, into the experience that the world's educational knowledge is impermeable. (22)

On the other hand the pedagogy of the integrated code is likely to proceed from the deep structure to the surface structure. Bernstein suggests that the consequences of this will lead to an emphasis upon, and exploration of,

general principles and the concepts through which these principles are obtained. In turn, this is likely to affect the orientation of pedagogy, which will be less concerned to emphasize how knowledge is created. In other words, the pedagogy of integrated codes is likely to emphasize various ways of knowing in the pedagogical relationships. With the collection code, the pedagogy tends to proceed from the surface structure to the deep structure; as we have seen, only the elite have access to the deep structure and therefore access to the

realizing of new realities or the experiential knowledge that new realities are possible. (23)

What counts as knowledge for Bruner and Bernstein is something that occurs following an involvement by the knower in the process of knowing. Knowledge is thereby personalized. 24 Consequently knowledge in the curriculum should not be regarded as an objective entity which can be clearly specified and set out in advance.

Conceptually a similiar line of argument, to Bruner and Bernstein regarding the nature of knowledge and personalized learning, is being argued by a number of educational philosophers at the Institute of Education, London University - R. S. Peters 1969, P. F. Dearden, 1968, and D. W. Hamlyn, 1973, for example.

Professor Peters, in his book Ethics and Education, states that educational knowledge must involve understanding, otherwise it would be mere 'inert' knowledge. If knowledge is not to be inert Peters states:

It must involve, some kind of committment that comes from being on the inside of a form of thought and awareness. A man cannot really understand what it is to think scientifically unless he not only knows that evidence must be found for assumptions, but knows also what counts as evidence and cares that it should be found. (25)

Similarly David Hamlyn objects to the characterization of school subjects as if they available in some kind of platonic realm. He states:

There is an inclination, I believe to think that there exists objectively something called, to take one example, mathematics, and that it is the aim of education to

bring the learner to a confrontation with it. Subjects are, on the account ideal identities available for contemplation. (26).

This, however, betrays a quite erroneous conception of school learning, according to Hamlyn, in that it is to suppose

... that learning consists merely in the acquisition of knowledge of a set of facts, the contemplation of a set of propositions. At its lowest level it reduces learning to simple rote - learning. But it cannot be anything like that in fact. Even at the simplest level the acquisition of knowledge of facts goes hand and hand with understanding. Even in rote - learning it is essential to understand what is going on, and in higher forms of learning is much more important still. (27)

### 3. Implications for Classroom Pedagogy.

It is clear that this new epistemology, as suggested by such people as Bruner, will place different constraints upon pedagogy, the way knowledge is taught, and therefore our view of learning. School knowledge is thereby not something that can be presented in a packaged form, that is laid out in front of the learner as a static reality to be acquired, as is implied in the behavioural/realist view of learning. The behaviourists see learning as a programme of activities designed to promote certain ends. This is especially the essence of the now defunct programmed learning movement (Ref. D. P. Ausabel, 1978 : p. 303 regarding the decline of programmed learning). And it has been carried into the objectives movement by many (e.g. Tyler (1949) and in a very precise form is illustrated by R.M. Gagné, (1967),

A curriculum is a series of content units arranged in such a way that the learning of each unit may be accomplished as a single act, provided that the capabilities described by specified prior units (in the

sequence) have already been mastered by the learner (28)

Professor R. M. Gagné of the University of California is a major force in the guided learning approach. His analysis of The Conditions of Learning<sup>29</sup> is one of the finest contemporary statements of the principles of guided learning and instruction.

For Gagné the objectives of instruction are capabilities. They are behavioural products that can be specified in operational terms. Subsequently they can be task analyzed; then they can be taught. Gagné would subscribe to the position that psychology has been successful in suggesting ways of teaching only when objectives have been made operationally clear. When objectives are not clearly stated, the psychologist can be of little assistance. He insists on objectives clearly stated in behavioural terms.

For Gagné, learning is the goal. How a behaviour or capability is learned is a function of the task. It may be by discovery, by guided teaching, by practice, by drill, or by review. The total emphasis is upon the learning and it is irrelevant how it is brought about.

In the Brunerian epistemology, however, the method is crucial, and it must ultimately be learning by discovery. In relation to Bruner's view of the learning process Esland writes:

The child 'discovers' claims of experience data which are relevant to his nomos and is encouraged to make them the nuclei around which future knowledge can

develop. He is thereby made self-regulative in that he actively controls his sequence of experience. This is the reason for the optimism contained in Bruner's well-known statement that 'any subject can be taught effectively in some intellectually honest form to any child at any stage of development'. The teacher as a guiding significant other induces the child to reflect on the emerging logic, and to use it as a generalizing base for acquiring future knowledge. Because the area of socially-approved knowledge is allowed to be diverse and open - ended, it is expected as a matter of course that the pupil will be able to find some cognitive attachment between himself and his school projects; he is therefore, expected to become committed. (30)

While for Gagne and the behaviourist view generally, learning is a carefully guided tour of a pre-arranged instructional programme. The child may work with programmed material or a programmed teacher (one who follows explicitly a step by step guide). But the child ultimately follows a sequence determined by the programme.

For Bruner much less system or order is necessary for the package. In general Bruner insists upon the child manipulating materials and dealing with contrasts and incongruities and contrasts, Bruner hopes that the child, because of his discomfort, will try and solve this disequilibrium, by making some discovery (cognitive restructuring). This discovery can take the form of a new synthesis or a new distinction.

Piaget<sup>31</sup> utilizes very much the same incongruity notion to account for the development of intelligence. In his system, the child comes at birth with certain sensori - motor co-ordinations which he calls schemata. Variations in stimulus situations call for adaptive accommodations

or changes in these schemata which changes are assimilated or or stored as residues. In Piaget's theory the child's active conceptions of reality (space, time, and number) are schemata which develop through a continuous process of accommodation and assimilation and become fixed or static only when the child's schemata come to correspond so well with reality that no further accommodations are required.

As similar concept to the Brunerian/Piagetian notion . appears in the writings of a number of other psychologists, for example. L. Festinger and G. A. Kelly. Festinger has written a book entitled A Theory of Cognitive Dissonance <sup>32</sup> in which he shows that a discrepancy between belief about a situation and perception of that situation acts like a drive. The subject acts to reduce the dissonance by either withdrawing from the incredible situation or by changing his beliefs. Similarly Kelly's phenomenological psychology of Personal Constructs <sup>33</sup> makes central use of the principle

When a person's construction fail to predict events, this is disturbing, even anxiety producing; and it motivates some kind of change... . (34)

This dissonance - conflict notion has important implications for classroom motivation. When a young learner is confronted with two conflicting pieces of evidence or certain illogicalities in his thought, he is challenged to solve the problem by pursuing it further: it thereby has a motivating effect. Furthermore the motivating effect is intrinsic to the organism.

J. McV. Hunt states,

This incongruity = dissonance principle makes both motivation and reinforcement intrinsic to the organisms relations with its environment, intrinsic, if you will, to the organisms information - processing. It is as if the organism operated like an error - actuated, feedback, system where the error is derived from discrepancy between receptor - inputs of the present and the residues of past experience which serve as a basis for anticipating the future. (35)

Intrinsic motivation may be distinguished from extrinsic motivation in that whereas the latter depends upon reward extraneous to the learning process, a reward often satisfying some need condition, the former depends upon factors hinging on harmonious or dissonant relations with the learning process, for example the notion of perceptual conflict or cognitive imbalance. Reward in this system is closely related to the thought processes involved: satisfaction in solving a problem or resolving a conflict is rewarding to the learner. D. E. Berlyne<sup>36</sup> in a discussion of intrinsic motivation introduces the concept of 'epistemic curiosity' to refer to knowledge seeking behaviour including questioning, observation, problem-solving. Epistemic curiosity then is concerned with pursuing knowledge for its own sake rather than for any reward extraneous to it. Closely related with this notion, in Berlyne's schema, is conceptual conflict including perplexity, doubt, contradiction and conceptual incongruity. Gofer and Appley state:

Berlyne has suggested that seeking knowledge arises because of conceptual conflicts or incongruities. (37)



Epistemic or exploratory behaviour consists of collecting information to reduce uncertainty - thus the learner is motivated to discover new information for himself.

This is an interesting and plausible concept of motivation: it sees the learner as an active, exploring agent who purposefully seeks knowledge for its own sake. What he learns is not devalued by the extraneous reward offered by the S - R pattern. Moreover, he is not learning responses to somebody else's questions or problems, but is recognizing problems for himself and solving them for the satisfaction of getting to know more and making sense out of accumulated experiences.

J. McV. Hunt in a discussion of intrinsic motivation in young children, attaches great importance to complexity in relation to children's interests and curiosity. In his view, a bored child is one for whom there is too little complexity in his environment. Just as a young baby will cease to pay attention to a very similar pattern and become habituated to it, as an older child will cease to show interest in a skill he has learnt unless it increases in complexity. McV. Hunt states:

The phenomenon of habituation plays an important role in the development of the interest in the novel and more complex. One can observe this very clearly in the development of an infant; one can see it all through life. This interest in the novel, the new and more complex is really a kind of corollary of the habituation process. Repeated encounters with patterns lead first to recognition and then to boredom. Once this has occurred it is the new that becomes interesting (38)

In planning work for children it follows that what is surprising or complex for one child will not necessarily evoke the same response in another; if surprise is to work as a

motivation device, each individual child's stage of conceptual development must be considered. The planning of work must be largely on an individual or small group basis. It is interesting to note that McV. Hunt suggests that some children in the class may act as complexity models for others. He states:

Very little research has been done on the search for complexity as a principle in the process of development. Yet, as I see it, this principle is the basis upon which one can motivate a continuous process of learning. In fact it seems to me to account for what Froebel called 'growth motivation' and what John Dewey also referred to by this term. The complexity of the action and behaviour of another child as a model for imitation is an important factor in the child's interests in developing his own competence. As an infant arrives at a given stage where he can perform a given kind of action, then a somewhat more complex model of that action appeals to his interest. But the presentation of the next level of increased complexity requires a nice judgement. When the increase is too great, the child's increased interest in the model becomes a basis for frustration (39)

Implicit in the argument for intrinsic motivation is the assumption that there is greater value in seeking knowledge or pursuing interests for their own sake rather than for any extraneous reward. For example, D. P. Ausubel states:

It is, at least potentially the most important kind of motivation in the classroom. (40)

Similarly R. S. Peters suggests that intrinsic motivation must be a central concern in the ultimate development of an 'educated person'. He writes:

The aim of the educator is to get others on the inside of such worthwhile activities and forms of awareness so that they will explore them for the ends which are intrinsic to them. (41).

This section has very briefly attempted to pin-point some of the implications of the Brunerian/phenomenological perspective for classroom pedagogy. States of knowing as distinct from mere packaged knowledge, cognitive conflict and intrinsic motivation are some of the consequences of this epistemology for classroom pedagogy.

In concluding the discussion on intrinsic motivation a few remarks are necessary. The discussion of intrinsic motivation is not meant to be totally idealistic and suggests that education can be carried on in an ideal environment where the teacher can rely upon his pupils being 'intrinsically motivated' on a permanent basis. Such a view would be unreal. The following remarks, which contain a teacher's thoughts about the value of intrinsic motivation, illustrate some of the problems regarding it in the every day reality of the classroom:

I have read a great deal about the value of involving children by appealing to intrinsic motives. It sounds intriguing, but I cannot help but feel that it is in conflict with some of my experiences as a teacher.

I teach a heterogeneous class; that is, a few students have a high level of interest, a few are academically disinterested, and the rest are somewhere in the middle. In addition, I have found that students respond to a system of rewards - including grades, competitive games, and helpful comments and criticisms. It is not that I am unaware of some faults of such a system, but it seems to be true that students become rather dependent on their teachers and it is difficult to rely on internal motivation. (42)

There is little doubt, but that teachers use and will have to use various forms of extrinsic motives in order to get pupils learning. While the teacher may have to rely on such extrinsic

devices in order to get the learning process started, ultimately he must hope that external motives will give way to an inclination on the part of the pupil to study for the values that the various learning activities hold for him. Indeed it is a common experience that interest grows with increasing knowledge; the more we know about a topic, the more our attention is drawn to features we either already recognize or others we wish to know more about. Gordon Allport's concept of functional autonomy is relevant here. He suggests that, while an individual may begin an activity for purely instrumental purposes he may later develop a desire to persist in the activity for its own sake. In relation to Allport's schema, Downey and Kelly state:

He (Allport) argues that while many activities may originally have served some other motive, their persistence suggests that they have gained drive value of their own - that is they are now independent of the original motives. (43)

Further in relation to the development of intrinsic motives the same authors state:

Thus it seems plausible that if a pupil works hard at his history say, in order to pass his examination, he will gain an interest in historical knowledge and investigation for its own sake (44)

Furthermore, in relation to extrinsic motivation it should be said that if an educational system is totally dominated by extrinsic rewards as a means of getting children to learn, such a situation is morally dubious. Extrinsic rewards are a form of bribe in that they can control an individual's behaviour as if he had no choice or autonomy of his own. If we are

educating children and not just training; then a total reliance on extrinsic motivation is questionable. This immediately raises questions regarding our own educational system, where extraneous success at examination is the motive that is constantly being relied upon in our schools - this is especially true at second level where this writer has most experience. In relation to this particular point Professor Enda McDonagh has remarked:

Is the educational activity being directed to impart information that can be reproduced at examinations with a view to a qualification for a job? If it is, it ought to be honestly acknowledged: this would be on the way to some kind of educational reality. But if it is, it is not learning how to be a human being. Of course, learning how to behave as a human being includes learning a skill in order to have a job, or function in society; but this is not the primary goal and should not entirely decide what is done in the classroom. (45).

Similarly R. S. Peters writes about some of the inadequacies of a total reliance upon ~~in~~ intrinsic motives within the educational context:

... in the motivational sphere students are unlikely to develop a delight in doing things for reasons intrinsic to them if rewards and punishments, meted out both by the school and by a fierce examination system, provide the stable incentives to the discipline of learning; for the institution itself embodies an attitude to conduct which is appropriate to Piaget's first stage of development. (46)

#### 4. Further Implications.

In concluding this dissertation one further implication of the Brunerian/phenomenological perspective for the classroom will be examined, namely discovery learning. The

discussion of its implications will necessarily be very brief - indeed the whole concept of discovery learning would rightly form an entire dissertation in its own right. Nevertheless, it is important, irrespective of how brief, that it should be examined for two reasons; firstly since it has figured so centrally in the view of learning presented in this paper, and secondly in the light of the criticisms advocated against this method of learning by such people as R. F. Dearden (1967) and P. H. Hirst and R. S. Peters (1970) and more recently N. Bennett.

It is Dewey who has given classic formulation to the structure of the discovery or problem method of teaching. Bruner has brought this epistemology up to date and it has been advocated as the method of teaching by the existentialist philosophers, the phenomenologists, Freire, and such curriculum planners as Eisner and Stenhouse. Their thesis having been in the form of an expression of faith in the powerful learning effects that come from permitting the student to put things together for himself, to be his own discoverer. This method of teaching has been advocated as an alternative to "copy" theory of intelligence and correspondence theory of truth. Jerome Bruner, in an article entitled "The Act of Discovery" outlines the important fundamental difference between expository teaching and the hypothetical mode (i.e. discovery).

In the former, the decisions concerning the mode and pace and style of exposition are principally determined by the teacher as expositor; the student is the listener. If I can put the matter in terms of structural linguistics, the speaker has a quite different set of decisions to make than the listener: the former has a wide choice of



of alternatives for structring, be it anticipating paragraph content while the listener is still intent on the words, he is manipulating the content of the material by various transformations, while the listener is quite unaware of these internal manipulations. In the hypothetical mode, the teacher and the student are in a more cooperative position with respect to what in linguistics would be called "speaker's decisions". The student is not a bench bound listener, but is taking a part in the formulation and at times may play the principal role in it. He will be aware of alternatives and may even have an "as if" attitude towards these and, as he receives information he may evaluate it as it comes. One cannot describe the process in either mode with great precision as to detail, but I think the foregoing may serve to illustrate what is meant. (47).

Neville Bennett's book Teaching Styles and Pupil Progress set itself the explicit task of disentangling the respective values of these two teaching methods. It set out to examine the range of teaching styles from the formal, teacher centred, controlled classroom at one extreme to the informal, more open-plan, student centred one at the other; and it inquires into the strengths and weaknesses of each. Two sets of questions were posed: (a) Do different teaching styles differentially affect the intellectual and emotional growth of pupils? (b) do different types of pupils perform better under certain teaching styles than others?

The main findings can be summed up quickly. The more formal the teaching, the more time pupils spend working on the subject matter at hand. And in the more formal classrooms students improved considerably more in reading and arithmetic skills than the less formally taught. Further, and very significant pupils in informal did not do any better on their creative writing than their more formally instructed fellows.

What of personality and teaching styles? Most pupil "types" progress better under more formal teaching. And particularly the insecure and neurotic pupil: he seems able to attend to work better, and harder, in a formal setting, Particularly for the unstable child, the informal setting seems to invite time wasting activities - indeed, the "unmotivated", rather neurotic child, was found to work four times as much at his studies in a formal setting than in an informal one. Interestingly enough, the informal class seems to increase favourable attitudes towards school - but it also increases anxiety. And for the "timid" pupil, the informal classroom brings him out socially, though it does not increase the quality of his work as much as the formal setting does.

Summing up the findings of Bennett's work Bruner writes:

Informal teaching seems to have hindered the transmission of literacy and numeracy. And it has not succeeded in compensating for this loss by altering creativity, or by buttressing insecure personalities in any measurable way - save through increased identification with school. But at the same time, it has created anxiety over unstructuredness. Teachers report, moreover, that informal teaching is considerably more demanding than formal and runs the risk, when it misfires, of failing to teach anybody anything. In one teacher's words, a formal class is bound to teach somebody something. (48)

What is the significance of such findings for the concept of discovery? It will be argued here that, while these findings seem to lend support to those who argue against the discovery philosophy, it is at the same time important that these results should be interpreted with prudence. In interpreting Bennett's work it is important that the theoretical rationalism of the



progressive practitioners in the study should be explicitly understood.

The 1960's and early 1970's witnessed an era when the popularity of the progressive movement reached a high point. The number of curriculum projects, both in the United States and Great Britain undertaken during this period using this methodological perspective, is an indication fo the popularity of the method. And the progressive / discovery method was adopted to a considerable degree in this country too, most explicitly through the new primary school curriculum. But it seems to this writer that there may have been an excessive degree of romanticism involved in the application of the discovery methodology in the classroom; and that this romanticism led to a conceptually unsophisticated application of the discovery method, thereby doing an injustice to the discovery concept. Traditionally the discovery/ problem posing method of teaching has been romanticized with the result that its justification and role within the educational process has been very inadequately understood. Through excessive romanticization it has assumed a doctrinal position whereby, when applied in the classroom, the discovery mode is seen in an all - or - none fashion as the essence of the whole educational enterprize. One can see such a doctrinal view of the problem posing method is an example quoted by Bennett:

The school is not merely a teaching shop, it must transmit values and attitudes. It is a community **in** which children learn to live first and foremost as children and not as future adults. The school set out deliberately to devise the right environment for children to allow them to be them-

selves, and to develop in a way and at a pace appropriate for them. It lays special stress on individual discoveries, on first hand experience, and on opportunities for creative work. It insists that knowledge does not fall into neatly separate compartments and that work and play are not opposite but complementary... Any practice which predetermines the pattern and imposes it upon all is to be discouraged. (49)

In relation to such a view Bruner comments:

What about spelling? The inexorable constraints of simultaneous equations? The structure of tragedy, or the contrasting balance of human myth? Are these to be banned? (50)

A further and more fundamental problem of an excessive reliance on the discovery concept must be examined. It is the fallacy of assuming that the child can achieve the ultimate aims of education self-directed from the start. The critical role of the adult as tutor is thereby ignored. However, common sense and technical enquiry are finally catching up with such romantic excesses. Such an outlook either explicitly or implicitly is embracing an extreme rationalist outlook. And it is this view of self-discovery that Chomsky has recently championed in relation to language learning and acquisition. Based upon his "innateness hypothesis", it was thought that language was self-discovered and need not be taught. However, it is now realized that the mother and her reactions are vital and critical for language acquisition.<sup>51</sup>

Professor D. W. Hamlyn in an article entitled "Human Learning" has dealt comprehensively with the problems of an excessive reliance on the rationalist position by Chomsky.

Chomsky has postulated an innate language faculty because it is for him inconceivable that the child should acquire familiarity with the idea of language merely from the noises that he hears from other people when they use language. But Hamlyn states, that

this account of the matter not only presupposes the view of the child as a little adult having to deal with a problem it also assumes that the child does it alone and ex nihilo, except what it is born with. (52)

Hamlyn believes that the child because of the essential immaturity of his intellect must be put in the way of things by a guiding adult. He writes:

The child has to be put in the way of things that will satisfy (his) interests; he cannot find them for himself, since he can have no conception of what will satisfy them or even of what it is for something to do so. ... In humans there have to be some instinctive patterns of behaviour, e.g. sucking, but so much depends on what the mother puts the child in the way of. Equally much depends on such things as expression of love and affection and on the rapport that is normally set up between parent and child. Thus the child is not a solitary but immature consciousness trying to make sense of a mass of data which come before it in the light of certain mysterious principles with which it is born. (53)

Hamlyn thereby pinpoints the crucial role of the adult tutor in the intellectual and social development of the child.

Further support for this view has recently come from Bruner:

Early connection with a supporting world begins to emerge as a leitmotif for the development of later self-determination. And indeed, one of the central issues is to assure the dispossessed that this connection is not destroyed by isolating alienation.

Let me end with an example from research on the pre-school young, for it illustrates the point. One of the known ways of increasing the young child's capacity to concentrate attention over longer periods of time is to have adults close by who serve as "scaffold" for the child,

shielding him from distraction, and permitting him to get over the rough places that would put him off. Once the child has experienced these protected, deeper forays into the world, he will increasingly prolong his attention on his, own, knowing what to expect. And having done so, he will develop mastery on his own of matters that before, without his new - found powers would have thrown him. (54)

Bruner and Hamlyn therefore, both highlight the role of adult tutor in guiding the development of the young child. This helps to rid the progressive / discovery mode of the fallacy that the child can arrive at the educational terminus self-directed from the start. This mode of teaching has traditionally been over romanticized and it is against a background of much romanticization that Bennet's work should be evaluated. One would need to know the theoretical sufficiency of those who operationalized the discovery mode in his study before one could confidently conclude regarding the merits of different teaching methods. The essence of the discovery / problem solving mode is conceptually more sophisticated than mere unguided self-discovery.

How such a view of learning can be operationalized in practice is something that would require enormous study. It is not the purpose of this thesis to suggest how it may be operationalized, rather it has merely set out to suggest that the existentialist / phenomenological perspective on human learning - which places fundamental value on the discovery concept - is the most realistic way to view human learning. The advocacy of this position has been a fundamental one concerned with the nature of learning in an educational context.

Learning, it has been suggested, is true learning in so far as the individual subjectively or personally makes the object of his learning his own. This view is being put forward as an alternative to the empiricist view which has dominated the study of human learning in the past. It has been suggested that the empiricist view and its behaviourist outgrowth, both imply a too mechanical view of the acquisition of knowledge, apart from other failings also highlighted; for they both imply that the effects of external stimulation are simply imprinted on the soul, the mind, the organism, or whatever it is.

A P P E N D I X

## APPENDIX

The purpose of this appendix is to suggest such psychological interpretations of school learning as suggested by Gagné, De Cecco, Lovell and Lunzer are fundamentally behaviouristic in orientation.

In relation to Gagné the behaviourist orientation of his position can be seen from the manner in which he defines 'learning'. For Gagné "learning is a change in human disposition or capability, which can be retained, and is not simply ascribable to the process of growth "(Gagné 1970, p.3). This is more acceptable than the usual behaviourist definition, which is content to equate learning with any change in behaviour. (Ref. Ch. 2 section 1 regarding the problems of seeing learning in terms of behaviour). However, at the same time Gagné's definition remains essentially behaviouristic in that it sees learning taking place only when the individual can do something which he could not do before. "People do not learn in a general sense, but always in the sense of a change in behavior that can be described in terms of an observable type of human performance". (Gagné 1970, p. 237). In other words, he is primarily interested in capabilities and only secondarily concerned, if at all, with dispositions. Broadly speaking, capabilities are overt, measurable in terms of the skill and other cognitive attainments, whereas dispositions tend to be more covert and elusive, having to do with the way the individual feels. For the behaviourist, any elucidation of what happens when the individual learns has to be treated as a 'black box' problem

- i.e. as an external observer he has to reckon with an input (stimulus), and output (response) and functioning process in between which is in the nature of things invisible (Ref. Ch. 1).

Summing up Gagné's psychology, M. L. Bigge (1976, p. 169) considers Gagné as an eclectic behaviourist in that he draws from a number of different schools of psychology. But, Bigge writes:

His eclecticism, however, is centered upon behaviourism, somewhat loosely defined, and it contains only marginal overtones gained from the Gestalt - field family of learning theories - hence the caption "behaviouristic - eclectic psychology" by which we identify his position. In the development of his psychological position, along with his taking major contributions from members of the behaviouristic family, Gagné draws some minor contributions from other psychological approaches.

De Cecco's psychology is also essentially behaviouristic. In his book The Psychology of Learning and Instruction: Educational Psychology (Englewood Cliffs, N. J. : Prentice Hall, 1968), p. 241, he identifies clearly with behaviourist psychology:

"The chapter uses the language of the connectionist - reinforcement learning theories. Research based on these theories forms the major part of psychological knowledge. My choice of theory and of language merely reflects the opinion that connectionist - reinforcement theories and vocabulary more than cognitive theories and vocabulary lend themselves to the explicit description of the conditions of learning and teaching. Those of us who view psychology as a natural science look to future research to resolve some of the issues between the learning theories.

Future evidence of his behaviourist orientation is his definition of learning, "Learning is a relatively permanent change in a behavioural tendency and is the result of reinforced practice". (J. P. De Cecco, . 1968).



The influence of behaviourist psychology can be further seen in the writings of Lunzer and Lovell. For example, Lovell defines learning as "a change in behaviour which is more or less permanent in nature... (Educational Psychology and Children, K. Lovell: Hodder and Stoughton, London, 11th Ed., 1975: p. 122).

The behaviourist orientation of Lunzer is seen in his view of education, which he sees as being concerned with knowledge, skills, and attitudes that he call behaviours. He writes, "education is concerned with the transmission of behaviour..." (Development in Learning - 2), (Eds) E.A. Lunzer and Morris J. F. , London: Staples, 1968, p. 443).

Chapter 1 of this thesis has explained why such views of educational learning are essentially behaviourist. Chapters 2, 3, and 4 have evaluated critically this conception of learning and in so doing an alternative strategy has been proposed.

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