The Psychology of Learning

An Introduction for Students of Education

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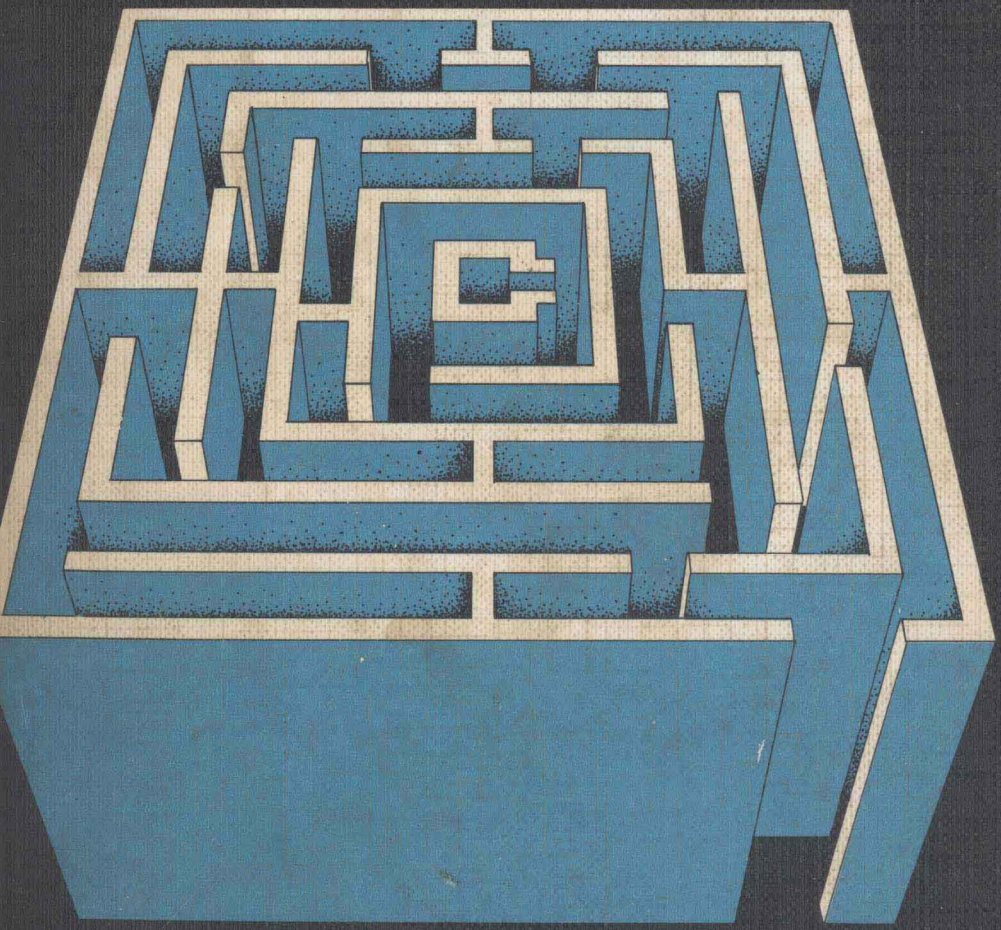

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BY

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Introduction

THIS introduction to the psychology of learning outlines and discusses some of the practical implications of the classical and more traditional topics of study as well as recent developments including theoretical models of learning and psycholinguistics for teachers in training. The scope and content of educational psychology has expanded and grown so rapidly that it is hardly possible for experienced tutors to keep pace with the published literature. How much more difficult it is for students to sift out material which is relevant for the work of the teacher in school, especially if they are following integrated or interdisciplinary courses of study.

One of the inevitable and inescapable weaknesses of a textbook of this kind lies in deciding which topics should be developed, mentioned or omitted. It is hoped that the text is no less satisfactory than others in this respect, the choice is subjective and the personal responsibility of the author. Although discussion is focused on how normal children learn, it has not been possible in this book to include styles and techniques of teaching, group methods and the teaching of curriculum subjects including learning to read and write.

In writing this book an assumption is made that educational psychology will maintain its identity and form an integral part of teacher-training programmes, and that insight into human learning and its problems is necessary for a sympathetic and realistic understanding of child behaviour and development. Interdisciplinary studies of general educational theory or courses structured round a curriculum subject are not condemned and ruled out in arguing for the continued existence of psychology as an independent discipline making a special contribution to the training of teachers. Integrated courses have an attractive theoretical rationale; in practice they are exceptionally difficult to organize and implement in a manner which is both easily comprehensible and educationally satisfying for students.

The author is convinced that students should first grasp the essentials of,

say, a taxonomy of educational objectives, an hierarchical model of thinking, a cybernetic or feedback principle or a structural theory of language acquisition; then with guidance from subject method tutors, think out for themselves the practical application of principles to specific learning situations. What is envisaged is two stages. In the first, the student acquires (i) technical knowledge and a working vocabulary of terms commonly used in psychology, (ii) skills like test administration, recording observations and the recognition of children with particular difficulties who should be referred, (iii) an ability to critically evaluate an original research paper; and (iv) familiarity with scientific and controlled methods of psychological investigation.

In the second stage, through colloquia, seminars and small group discussion, the contributions of history, philosophy, psychology, sociology, comparative and health education to an educational issue or subject topic are synthesized or interrelated. A student's ability to make a positive and intelligent contribution to discussion and expand his understanding of educational processes is contingent upon prior acquisition of knowledge from the foundation areas. Otherwise discussion will tend to lack meaning for students; it will have no obvious aim or direction and will degenerate into trite comments thrown together in an amorphous collection of snippets and jottings.

The replication of some of the experimental work reported in the text is strongly urged, provided caution is taken in the interpretation of results and not too many assumptions are made on the relevance of limited laboratory investigations for the more complex classroom teaching situation. Practical exercises, tutor demonstration and audience participation, child study and guided observation, visits to special schools and institutions and modern technological aids are all considered essential in helping students gain insight into the learning process and in making personal reading more meaningful.

References and suggestions for additional reading are given in the expectancy that readers will follow up selected topics in greater depth. A great deal of seminar material is nowadays readily available to students in the various collections of readings regularly published in paperback form. Naturally, references to the more recent articles and papers in the leading British journals predominate and this is justified in Britain both on the grounds of wider student access to these publications and an increasing reportage of experimental work in the British educational setting. Cross-

cultural studies are important in psychology but again one has to be very careful in weighing up their implications for a national system of education or even a small or specific part of that system.

One of the unsolved mysteries of the classroom is why a suggestion, hint or technique which works on one occasion for a teacher utterly fails on a subsequent yet similar occasion or proves helpful to one teacher but disastrous to another. From experience of observing teachers at work the author is consciously aware of this problem and apologizes for all the subjective comments and interpretations of classroom situations which have no empirical psychological foundation and possibly fail to work out in practice. Having said this it would be stupid to imply that psychology has little of practical value to offer the young teacher. On the contrary, draw from possible alternative suggestions but, above all, learn how to anticipate and know when to take action. A teacher should never assume the role of a distant spectator neither should he be frozen by fear into a state of inactivity. Passive acceptance and feigned unawareness is no solution to a deteriorating classroom atmosphere or incident.

Educational psychologists are often unfairly criticized for adopting an eclectic overview and being inconsistent, one moment taking a cognitive view and the next drawing from behaviourist principles. It is not the aim or function of an introductory text of this kind to defend or take sides with a particular school of thought but to state the case, albeit too briefly and sometimes in an over-simplified and possibly misleading form. In any case, many of the better known contemporary models of learning theory are not only eclectic in the sense of being rooted in two major classical schools but they also borrow heavily from physiological research and advances in the study of communication and information theory.

The danger of writing an over-simplified account of a complex theory is ever-present in an introductory text for student teachers compared with one for specialist psychologists. One attempts to maintain technical accuracy but it is not easy to do so in a subject which is continually developing and is generating far too many personal definitions, notions and concepts for comfortable management by the beginner. Also, there is nowadays so much psychological information available that it is becoming impossible to cope with it all. The day cannot be far off when research will move away from studies of efficient learning techniques to methods of storage and rapid retrieval of information from data banks.

Despite greater understanding of human behaviour and advances in the technology of instruction the old cliché that there is no easy path to learning holds as true today as ever. The teacher has a certain measure of control over the classroom environment and a capacity for making learning a pleasant and worthwhile experience; he points the way and offers guidance, but in the end it is the child's own legs that carry him along the path. It is a tortuous and uneven path with uphill and downhill stretches, plateaus and a surprisingly large amount of back-tracking. In the acquisition of physical skill, language and number many movements and rules have to been unlearned to facilitate subsequent progress and efficiency. Teachers must recognize unevenness as an inevitable characteristic of human development and seek ways of stimulating and motivating children through periods of difficulty.

Finally, learning should never be considered synonomous with rote acquisition of factual knowledge and skills, it encompasses thinking, problem solving and creative production. Foster cognitive development by placing children in decision-making and problem-solving situations whatever their age and however imperfect the initial response. A child progresses towards a full development of his individual potential in thinking only when he is provided with a variety of opportunities in which it may be fostered and practised.

The reading list following this introduction includes the more general textbooks on psychology, teaching and educational research which may prove helpful to student teachers.

Additional Reading

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CHAPTER 1

Learning I

Concept of Learning

Students of education are generally surprised when they are first confronted by a technical and seemingly unhelpful definition of learning usually expressed in the following words, "a permanent change in behaviour as a result of experience". This is because young people fresh from school have become accustomed to equate learning with rote memorization as, for example, in revising for an examination. From birth and throughout the life span one learns far more than the recall of facts by heart and the acquisition of competence in skilled activities; to these must be added—attitudes, ideals, mannerisms, prejudices, roles and social skills. What are broadly known as instinctive behaviour patterns are therefore excluded by definition as also are normal growth or maturation processes and temporary states such as those induced by alcohol, drugs and fatigue.

Imprinting

The word "instinct" has tended to become a dated psychological concept and it is nowadays fashionable to talk about innate response tendencies or species—specific behaviour, preferably the latter, because leading ethologists like Tinbergen (1951) have shown that much instinctive behaviour is characteristic of one single species. A behaviour pattern which has been built-in from birth or is innately programmed is said to have been imprinted, and excellent examples of imprinting are to be found in Lorenz's *King Solomon's Ring* (1952) including the classic example of the gosling who follows the professor as he walks about almost immediately from hatching.

In this case the propensity to follow a moving object has been programmed and is innate, whereas the act of attachment has been learned.

This behaviour has been observed in other "precocial species". The term indicates that they can walk immediately after hatching; however, the attachment must occur within a few hours or at the most a day or two from birth. The so-called critical period is of slightly longer duration for a gosling kept in isolation from birth compared with goslings brought up in a group, which consequently have become imprinted to each other.

Fascinating as this behaviour is to general readers it leads to that difficult perennial question raised by student teachers: "why does one have to know so much about the psychological menagerie, surely the child is the proper subject for study?" This is not easily answered because it soon becomes apparent to most students that the relevance of the findings of animal experiments for the work of the teacher in the classroom is often artificial, forced, hypothetical and tenuous. Further discussion of this point inevitably raises another fundamental problem: in the study of behaviour who makes the more worthwhile contribution to knowledge, the ethologist who observes animals in their natural environment or the laboratory psychologist who devises an artificial experiment in an alien environment, and then poses the animal problems which in the context of normal behaviour is unnatural? Also is it valid to compare results of experiments using different species, when it is known that each member of the animal kingdom represents a stage along the evolutionary scale? The results of investigations into phyletic differences in learning by Bitterman (1965) and others suggest that there are marked qualitative differences in performance, and that one should not automatically assume that the processes of learning are the same for all species. Laboratory animals are trained for use in psychological experiments in order to observe and evaluate learning under simple straightforward yet scientifically controlled conditions. One must be fair to experimental workers in the laboratory who often have a different aim compared to the ethologist. Their work is usually more specifically directed towards a single or limited problem and the approach is consequently more rigorous. Unfortunately from the point of view of human learning, animal studies necessarily preclude consideration of language, the varied use of which sets mankind apart from the remainder of the animal kingdom.

The obvious yet elusive aim of every educational psychologist is first to describe and evaluate experimental evidence and then examine its relevance for learning by children and finally to assess its merit in normal educational practice. This approach necessitates a personal selection of material which

a more general psychologist will deplore because it has a tendency to produce an unbalanced and somewhat exclusive account of learning. The classroom orientated and highly pragmatic student of education welcomes a reduction in theory and a clarification of concepts even if it incurs a slight loss in scientific detail and accuracy.

Although a broad historical approach to the various learning theories has been adopted, the order has occasionally been modified to show the emergence of two main schools of thought and how they have influenced contemporary research.

Thorndike's Structure of S–R bonds

The earliest theorists, some dating back to Classical times, thought learning and memorizing resulted from the formation of simple associations of words, ideas, objects and concepts "in the mind": the more pleasurable experiences being retained longest; the painful, unpleasant experiences are soon forgotten.

Association by contiguity is a vague theory and expressed in its simplest terms it describes little and explains less; however, from it emerged the implication that rewarded associations have greater permanence, and this proved to be of considerable significance to later investigators. Take an imaginary conversation between a father and his young son as an illustrative example: "What is a ship, Daddy", asks the boy. "Look, here is a picture of a ship in this paper", replies Father and he proceeds to write down the letters "S–H–I–P" in the margin and at the same time talks about the pleasures of seeing ships off the coast at a holiday resort or cruising to exciting places far away in great luxury and so on.

Father next asks his son to spell out the word "SHIP" and to write it down. He gets it right, and Father praises his correct response, "well done", but becoming bored with the lack of stimulating repartee suggests that the boy draws a picture of a ship, colours it and gives it a name. The boy works at his task with utter devotion until he knocks over and spills his painting jar, is reprimanded, then disappears out of the room and down the garden accompanied by volumes of parental abuse which suggest that he is either a clumsy clot, a moron or worse. This pattern of behaviour illustrates the principle of reward or more technically "reinforcement" of a successful response and its converse.