Psychological Aspects of Learning and Teaching

Edited by Kevin Wheldall
and Richard Riding

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PREFACE

This book is designed to introduce a carefully chosen series of psychological perspectives to education students. Our rationale for selecting the topics covered is outlined in the Introduction. Suffice it to say at this point that our aim has been to present what we feel are vital, pertinent and relevant topics within educational psychology which have direct bearing on the processes and practice of teaching and learning. The chapters have been written with the beginning student in mind, but not with the aim of supplanting the traditional introductory test which we tend to assume education students will already have read. Our intention is rather to take further, or 'unpack', topics which will, necessarily, have received only limited coverage in an all-encompassing introductory text. In some respects, then, this book may be seen as a bridge between the traditional introductory overview text and the 'literature'. Our aim is to guide the education student, new to psychology, along paths which he or she will find most relevant to teaching and learning.

We would like to thank Patricia Riding, Margaret Pallant and Susan Colmar for their generous help in the production of this book.

<div align="right">Kevin Wheldall and Richard Riding</div>

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INTRODUCTION

Talking to education students over the years, we have frequently heard students question the value of much of the psychology they were taught; in large part, we agree with them. As we have said elsewhere (Riding and Wheldall, 1981), "Teachers frequently complain that educational psychology has little to offer them that is of real value in the classoom. We think that it is important to admit that, to some extent, they are right." As psychologists we are interested in so - called 'pure' psychology, especially where it informs our thinking about the applied use of psychology in education. But there is no reason why teachers and students of education should necessarily be similarly interested. What they are interested in is psychological theory and content which directly informs them as teachers, and which is manifestly useful to them in the classroom.

Not all aspects of psychological research have findings that are practical and useful in the school situation, nor is this confined to education. It is true of most applied areas of other disciplines, in that only part of the pure study is useful. One could think, say, of agriculture. The farm manager is not necessarily going to be interested in the whole of such subjects as botany or zoology or chemistry. Only certain aspects of these subjects are going to have practical relevance. The important thing is to identify those aspects of psychological research that provide practical information for the teacher, and which will help the teacher to be effective. So when we come to the problem of deciding what psychology has to offer to the teacher, we have to begin by asking what does the teacher need to know that is going to be relevant and useful.

In many books there is a great deal of material which has no practical use or application to the teacher; topics like the percepton of visual illusions, the learning of lists of words and nonsense syllables which are very untypical of what really

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happens in school, and work to do with animals such as rats and pigeons whose behaviour bears little resemblance to that of human pupils. All of this may be of interest to the pure psychologist, and may even in time produce knowledge that will be helpful in understanding more fully how everyday learning takes place. However, at present it has no immediate value for the teacher and its inclusion in educational psychology texts only serves to confuse the teacher and student. This is particularly unfortunate when there is much psychological work that has been done recently which is already useful, relevant and which could be applied to the practical situation if teachers knew about it.

Our policy for this book, therefore, is to select carefully those areas which we know from our own experience and research have useful, practical applications to the everyday classroom environment. Ideally this will help teachers to understand better how to plan and present their teaching and thereby enable pupils to learn more effectively. Consequently, this book is not an introductory text in the all encompassing, traditional sense but nor does it assume that the reader has a great background knowledge of psychology. Each chapter focusses on a specific topic, specially written for this book by an expert in that area with the aim of providing the reader with a contemporary perspective.

The book consists of three parts. Part one represents a fairly major departure from most educational psychology texts since it is devoted to a consideration of the behavioural approach to teaching. This approach is swiftly gaining a wide acceptance. Chapters demonstrate the usefulness of the behavioural approach in terms of improved classroom discipline and also in academic achievement. Part two focusses on how language and thinking operate in the classroom focussing on both teachers and pupils and their individual differences. Chapters discuss the importance of language and communication in the classroom, the processes by which children typically learn in school, and the factors influencing the thinking of both teachers and children. Finally part three presents important, if not essential, background knowledge for teachers on the developing child. We have included chapters on the development of thinking, how language is learned, and the nature of individual differences between children.

All of this has led to a book with a more specific remit than most other texts in educational psychology. We have attempted to include only chapters on topics which we consider it important for teachers to know about. We have excluded areas traditionally stressed and have emphasised areas typically neglected. We hope the result is a book that is relevant and

which fulfils its aim of informing you and improving your teaching.

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SECTION ONE. CLASSROOM MANAGEMENT

Some children present a major problem to teachers. They may appear to be 'developmentally delayed', 'ill prepared for school', or even 'operating under a totally different value system'. These are only other ways of saying that they behave differently from so-called 'normal' children. They may not talk much, or perhaps worse, they may listen less; they may refuse to pay attention; they may well not find school work rewarding; they may indulge in anti-social behaviours; they may swear or fight. In fact they may not do many of the things you expect normal children to do and yet they may do many things you do not want them to do! A behavioural psychologist would view these problems as being primarily due to the child's learning experiences i.e. as a result of the systems of reward and punishment operating in his environment. In attempting to solve these problems we would define goals specifying behaviours or skills which are appropriate for the classroom setting and of benefit to the child. As a behavioural teacher you too can define appropriate behavioural goals for the children in your care and then use your knowledge of behavioural psychology to structure your teaching and your classroom environment to facilitate the learning of, and maintenance of, appropriate desirable behaviour and to reduce, or even eliminate, undesirable behaviour.

The first section of this book is concerned with 'Classroom Management' and serves as an introduction to the behavioural approach to teaching. In the two chapters which follow we are concerned with the mechanics of classroom teaching and we hope to demonstrate that the theories underlying behavioural psychology have direct, practical applications in the classroom. The two chapters are concerned with both children's social and academic behaviour in the classroom which cannot be entirely separated from each other. In the first of the two chapters, Kevin Wheldall considers how, by employing a behavioural approach to teaching, satisfactory classroom discipline can be achieved in a positive, non-

punitive way. In the second chapter, Ted Glynn discusses
the ways in which the behavioural approach can be employed to
teach children academic skills and content more effectively.
Both chapters assume some familiarity with the general
behavioural approach which will be reviewed briefly here.

What then is the behavioural approach? Before attempting to
discuss what the behavioural teacher can achieve in the
classroom, we must first consider what characterises a
behavioural perspective and briefly outline its origins in the
school of psychology known as behaviourism. A more thorough,
but still introductory, review of this is given in 'Social
Behaviour' (Wheldall, 1975), upon which parts of the following
theoretical and historical sections are based.

PAVLOV'S CLASSICAL CONDITIONING

The roots of behaviourism lie in the work of the Russian
physiologist I.P. Pavlov, on what came to be known as
classical conditioning. Since Pavlov's work is so well known
("Pavlov, that rings a bell!"), and since its applications to
education are limited, we need provide only a brief mention of
it here. It is important to emphasise, however, that it had
considerable influence on both J.B. Watson, the 'founding
father of behaviourism' and B.F. Skinner, the man who took up
his mantle to produce 'radical behaviourism', which is
currently accepted by many as providing the most adequate
descriptions so far of the operating principles of human
behaviour. However, Pavlovian conditioning procedures are
also important in their own right to an understanding of some
aspects of human behaviour, especially emotional behaviour,
and are applied clinically in various forms of behaviour
therapy such as the desensitisation of obsessive fears and
various forms of aversion therapy aimed at reducing
undesirable behaviours.

WATSON'S 'BEHAVIOURIST MANIFESTO'

The unchallenged father of behaviourism was J.B. Watson who
pioneered this radically different approach to human
psychology in the United States at the beginning of this
century. After working with animals and developing methods
for studying animal psychology, he became convinced that such
methods were not only equally applicable to the study of human
psychology, but that they were also the only scientifically
reputable way of doing so. Watson's behaviourism was based
largely on Pavlovian classical conditioning. In 1913 he
published what became known as the 'Behaviourist Manifesto' in
which he stated the case for a new human psychology based on
extreme objectivity and the importance of learning. Brushing
aside introspection of inner mental life, he demanded that

psychology concentrate purely on what could be observed, i.e. behaviour. He insisted that concepts be both carefully defined and experimentally demonstrable. Freudian notions and instinctual theories were rejected on both of these grounds; they were vague and virtually untestable. Alternative explanations, many highly speculative, were offered by Watson in terms of learning based primarily on extrapolations from Pavlov's work on conditioned reflexes. He attempted to explain even the most complex aspects of human personality by 'millions of conditionings' of basic reflexes.

Watson was personally so convinced of the importance of learning at the expense of hypothesised, but unproven, innate behaviours that he once made the following statements:

"The behaviourists believe that there is nothing from within to develop. If you start with a healthy body, the right number of fingers and toes and eyes, and the few elementary movements that are present at birth, you do not need anything else in the way of raw material to make a man, be that man a genius, a cultured gentleman, a rowdy or a thug" (1928), and similarly - "Give me a dozen healthy infants, well formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select - doctor, lawyer, artist, merchant-chief, and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocation and race of his ancestors," (1913).

This is extreme environmentalism - the belief that human behaviour is totally learned from the environment in which the person is reared, as opposed to nativism -the belief that a person's potential is biogically fixed at birth. Few of even the most fervent behaviourists would argue so extreme an environmentalist view today since it has been convincingly demonstrated that heredity exerts a powerful influence which effectively sets the limits on an individual's potential. In fact even Watson admitted that he was exaggerating when he made his claims and Skinner has subsequently said, "I have never known any behaviourist, with one exception, who has denied the very considerable role of genetic endowment," (Cohen, 1977). As Huxley (1964) has powerfully declared, extreme environmentalists such as Watson "forget that even the capacity to learn, to learn at all, to learn only at a definite stage of development, to learn one thing rather than another, to learn more or less quickly, must have some genetic basis."

Acknowledging the role of heredity and genetic endowment, however, does not necessarily mean accepting that, for example, 'intelligence' (whatever that is) is inherited - what

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is inherited may be something much more basic, such as susceptibility to different forms of reward and/or punishment. Nor is accepting the role of heredity to deny for one moment the essential plasticity of human behaviour, which allows considerable and continual remoulding by the environment. So called 'low' or 'poor' intelligence in a child, which may in part be (in some as yet unknown way) genetically determined, may possibly prevent the Watsons of today turning out "doctors or lawyers" but this restriction is only at the upper end of complex skilled behaviours which still allows considerable scope for changing the child's behaviour. In fact, it is probably true to say that few children are prevented from achieving their goals by genetic limitations since their potential is so rarely maximised by efficient manipulations of their environment to optimise appropriate learning. Furthermore, applied learning theory in the form of behaviour modification techniques has allowed genetically and otherwise flawed, severely retarded children to achieve levels of skill far in excess of anything that would previously have been expected from such children whose apparent future was summed up by the label 'untrainable vegetative retardates'.

SKINNER'S OPERANT CONDITIONING

The work of B.F. Skinner is frequently misunderstood. Many, otherwise well educated, people dismiss his ideas without clearly understanding what they are, often confusing them with classical conditioning and believing that he is a strong advocate of the use of punishment. As Skinner himself has said in interviews: "Its quite surprising how little the world in general knows about operant conditioning, and that world includes many psychologists."

Unlike classical conditioning, operant conditioning is not restricted to physiological (autonomic) responses. It does not build on innately established stimulus-response links but can be used to build up complex behaviours by the conditioning of simple discrete responses which the animal is observed to make.

Skinner's theory of learning basically argues that most behaviour consists of the emission of responses usually in the absence of <u>known</u> stimuli. The rate of responding will increase if responses are '<u>reinforced</u>', for example, by giving a 'hungry' animal food. Reinforcers are very difficult to define. In the strict technical sense they refer to any things or events which when following a certain behaviour lead to an increase in the frequency or probability of that behaviour. But basically reinforcers are things that the animal will seek out.

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"Good things are positive reinforcers. The food that tastes good reinforces us when we taste it. Things that feel good reinforce us when we feel them. Things that look good reinforce us when we look at them. When we say colloquially that we 'go for' such things, we identify a kind of behaviour which is frequently reinforced by them." (Skinner, 1971)

Hence, food will reinforce a 'hungry' (food deprived) animal and sexual gratification and the alleviation of thirst may also function as reinforcers. These are examples of unconditioned positive reinforcers; in that they appear to be innate, they may be said to be unconditioned, and in that the animal will seek them out, they may be said to be positive. Negative reinforcers consist of stimuli that the animal will seek to avoid, the termination of which will be reinforcing. An example of a negative reinforcer is an electric shock which will reinforce behaviour by its removal. Hence an animal's behaviour could be reinforced positively by giving it food or negatively by terminating an electric shock. Negative reinforcement has the effect of increasing responses by the termination of an aversive event whereas punishment consists of presenting the aversive consequence in an attempt to reduce the frequency of responses. Skinner considers punishment to be a rather unreliable and time consuming way of preventing responses from occurring and does not give it much emphasis in his writings. We should note that removing positive reinforcers is also a form of punishment.

Some teachers react adversely when they hear that the behavioural approach to teaching has its origins in work with rats and pigeons. They protest that it demeans man to attempt to reduce his behaviour to the level of animal behaviour. But of course man is an animal and it would be rather odd if these simple laws of nature were not equally applicable to man, albeit in more sophisticated form. Few would deny the benefits of medical advances initially pioneered with simpler animals and, in fact, we would expect new procedures at the experimental stage to be tried out with animals before human life was risked. Similarly, it makes sense that behavioural procedures were initially pioneered with animals where there is less (potential) risk and where greater control can be achieved within simpler experimental paradigms, although these would not be directly applicable in the study of human behaviour. None of this is meant to suggest, however, that we are, or should be, trying to apply the same procedures directly with children in schools. Nor need we concern ourselves further with studies carried out in the rat lab., since there is now a wealth of material reporting research with human subjects and countless demonstration studies of effective behavioural interventions carried out with children

in classrooms and similar environments.

There are many other aspects of operant theory which we have not yet described but it is preferrable to pass on to the classroom setting and introduce any further new concepts as necessary. We are now in a position to review the lessons learned from our brief historical perspective on behaviourism and to clarify exactly what we mean by 'the behavioural approach to teaching.'

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Chapter 1

A POSITIVE APPROACH TO CLASSROOM DISCIPLINE

Kevin Wheldall

It is a source of amazement that, whilst courses of training for teaching universally lay great stress on curriculum design and content, on the philosophical, historical, sociological and psychological perspectives on education, and on the in-depth study of one's main academic subject, relatively little time is spent in preparing the teacher-to-be in the art or, as we would prefer it, the science of teaching. Very little instruction is given in what the teacher actually ought to do in the classroom, how she or he should behave. This is particularly noticeable in the context of handling troublesome or disruptive behaviour in the classroom. Many student teachers are still told the myth that, provided you have spent enough time preparing your lessons properly, you will never have discipline problems. The falsity of this advice is exposed by the countless number of both student and practising teachers who have had lessons, which were impeccably prepared, destroyed beyond redemption. Many have been reduced to tears by classes of children which no amount of prior lesson preparation could control.

Teaching practice itself is a curious idea whereby student teachers are left alone for large periods of time to cope, as best they can, with whole classes of children, with little or no guidance as to how to proceed once they are actually in the classroom. The lucky ones may receive useful (or otherwise) tips from more experienced staff. The most common advice given is "Give them hell for the first week, show them who's boss, and then you can relax." Others rapidly acquire the skills of sarcasm and 'put down', learned from teaching colleagues (who should really know better) or perhaps dimly remembered from their own school days. Many will fervently wish that an effective model of teaching was available which offered practical advice about what one should actually do in the classroom. We believe that the behavioural model is the answer to that wish. The behavioural approach to teaching offers a theoretical basis for understanding what is happening

in classrooms and, perhaps more importantly, it has an accompanying methodology for approaching and analysing problems and a technology for solving them. As we hope to show, the behavioural approach offers a <u>positive</u> alternative for classroom discipline. We believe that the behavioural approach to teaching can, if seriously studied and the necessary skills learned, yield both more effective teaching and a more rewarding teaching experience. It is first important to spell out, however, exactly what the behavioural approach to teaching implies. The following section is based on chapter two of a forthcoming book by Wheldall and Merrett (1982).

THE BEHAVIOURAL APPROACH TO TEACHING

The behavioural approach to teaching is based on behavioural psychology, a school of thought which is sometimes referred to as behaviourism. Behaviourism, and hence the behavioural approach to teaching, is based on several general assumptions, which may be summarised as follows:-

1. The concern of psychology (and hence teaching) is with the observable.

   This means that teachers who adopt the behavioural approach (behavioural teachers) concern themselves with what a child actually does, i.e. his behaviour, rather than speculating about unconscious motives or the processes underlying his behaviour. The behavioural approach is objective and is concerned with the observable facts of life. For example, a teacher might report that "Sally worked well for the first half of the lesson but then her concentration lapsed." In behavioural terms what happened was that Sally completed ten sums correctly in the first twenty minutes of the lesson, but only two in the last twenty minutes. The teacher's reference to her concentration lapse is an attempt at explanation based purely on speculation.

2. For the most part, and certainly for most practical purposes, behaviour is learned.

   In other words behaviour, what people do, is assumed to have been learned as a result of the individual interacting with his environment, rather than being inherited at birth. This does not mean that behavioural psychologists and teachers <u>do</u> <u>not</u> believe in genetic inheritance or that they <u>do</u> believe that anybody can be taught to do anything given time. Rather they believe that genetics or biological endowment may set the limits for what an individual can learn, but that behaviour is

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