Individual Learners
Personality differences in education

W. Ray Crozier
The current emphasis in educational discussion is on what is common to learners, whether this is a common curriculum, the assertion that one method of teaching is the best for all, or the belief that differences in educational outcomes reflect the effectiveness of schools rather than differences between students. The issue of personality differences among learners is largely neglected or denied.

*Individual Learners* redresses the balance by considering significant recent research into the link between personality and learning, and includes discussion of topical and controversial issues such as attention-deficit hyperactivity disorder, Fragile X syndrome, genetic factors in aggression and gender differences in motivation. The book considers fundamental issues in the study of personality and provides an up-to-date review and evaluation of the continuing nature–nurture debate. It then examines five traits that can have an impact upon learning: aggressiveness, anxiety, achievement motivation, self-confidence and shyness.

*Individual Learners* provides an accessible account of recent research into the links between personality and education and their implications for educational practice. It will be invaluable to all those with an interest in education, whether students, teachers or lecturers.

**W. Ray Crozier** is Senior Lecturer in Psychology of Education, University of Wales, Cardiff. His previous publications include the edited collection *Shyness and Embarrassment: Perspectives from Social Psychology* (1990) and *Manufactured Pleasures* (1994).
Individual learners

Personality differences in education

W. Ray Crozier
To Sandra, John, and Beth
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Motivation</td>
<td>142</td>
</tr>
<tr>
<td></td>
<td>Motivation as a trait</td>
<td>142</td>
</tr>
<tr>
<td></td>
<td>Attribution theory</td>
<td>147</td>
</tr>
<tr>
<td></td>
<td>Self-regulation</td>
<td>155</td>
</tr>
<tr>
<td></td>
<td>School influences on motivation</td>
<td>160</td>
</tr>
<tr>
<td></td>
<td>Conclusion</td>
<td>164</td>
</tr>
<tr>
<td>6</td>
<td>Self-confidence</td>
<td>166</td>
</tr>
<tr>
<td></td>
<td>Self-efficacy</td>
<td>167</td>
</tr>
<tr>
<td></td>
<td>Self-esteem</td>
<td>171</td>
</tr>
<tr>
<td></td>
<td>Conclusion</td>
<td>189</td>
</tr>
<tr>
<td>7</td>
<td>Shyness</td>
<td>191</td>
</tr>
<tr>
<td></td>
<td>Matters of definition</td>
<td>191</td>
</tr>
<tr>
<td></td>
<td>Studying withdrawn behaviour</td>
<td>194</td>
</tr>
<tr>
<td></td>
<td>The educational experience of shy students</td>
<td>203</td>
</tr>
<tr>
<td></td>
<td>Conclusion</td>
<td>209</td>
</tr>
<tr>
<td></td>
<td>References</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td>Index</td>
<td>226</td>
</tr>
</tbody>
</table>
Figures and tables

FIGURES
2.1 Dysphasia family pedigree 59
2.2 Fragile X syndrome family pedigree 61
3.1 Annual citations of attention deficit disorder 106

TABLES
1.1 The ‘Big Five’ traits, descriptive attitudes and correlations with grade point average 22
2.1 Thomas, Chess and Birch’s nine basic temperaments 48
2.2 Childhood temperament and adjustment in school and adulthood: The New York Longitudinal Study 51
2.3 Estimating the proportion of genetic and shared and non-shared environmental influences upon personality 67
2.4 Estimates of heritability of temperament from the MacArthur Longitudinal Twin Study 69
5.1 Sample items from Action Control Scale 158
6.1 Assertive and defensive self-presentation strategies 184
A teacher contemplating a new class of students can be confident of one fact – the students will be very different from one another. Some of these differences will suggest themselves at the outset as the teacher looks through the class register, where names will reflect the gender and possibly the ethnic, religious or social class backgrounds of the students. Individual names might trigger expectations if the teacher recognises a child from the reputation he or she has established earlier in the school, or a brother or sister has been in the class, or the family is well known to the school. When the teacher first meets the class, further differences will be apparent: in height and weight, in impressions of neatness or physical attractiveness, in ethnic identity.

The school minimises many of these differences, by grouping pupils according to their age and possibly on the basis of their past academic achievements. Jackson’s (1968) description of pupils’ experience of school as being a member of a ‘crowd’ suggests a process of ‘de-individuation’, that can be seen, for example, in the common requirement for pupils to wear a uniform. Nevertheless, children are very different from one another and older pupils in particular will often put considerable effort and ingenuity into asserting their individuality, perhaps by modifying the uniform. With shirt hanging out over skirt or trousers or tie loosened and hanging over the shoulder, they challenge the school rules.

Differences among children become more salient to the teacher as the class begins its work, attempting tasks that themselves assume a degree of similarity among pupils. Children are typically taught in large classes of 30 or more pupils and, in the main, follow a common curriculum at a similar pace. Very soon, some of the children will be seen to make more rapid progress than others, and may display special talents or aptitudes; the lack of progress of other pupils will become of concern to the teacher, and in some cases additional advice may be sought. Some children will be docile and others difficult, some keen to work, others easily distracted. There will be children who establish effective relationships with the teacher and get on well with each other, but others who are withdrawn, awkward or demanding.
The skilful teacher will search for the individual approach that seems to work with particular students, in gaining their attention and interest, in finding appropriate ways to analyse the tasks they find difficult, in responding to their successes and failures. Of course teachers themselves are just as different from one another as their students. Schools may establish policies for the curriculum and methods of teaching, for discipline and pastoral care, but no two classrooms will be the same, the same class of students will behave in a different way for one teacher than for another, and individual students will behave differently in different classes and with different teachers.

Such variation has always raised controversies in education. There has been a long-running dispute between those who believe that educational provision should be tailored to meet individual needs and those who argue for equality of treatment. This issue was at the heart of the movement to establish a comprehensive system of education in Britain. It is represented in current debates about selection, streaming, and ‘mixed ability teaching’.

Psychologists’ contributions to these debates have also proved controversial. From the outset, the development of intelligence testing has been linked with the selection of students for different kinds of schools. It was argued that these tests provided a ‘scientific’ basis for making these selections and, as a measure of the child’s ‘innate’ ability, they would provide a fairer method than school attainment tests. However, arguments about innateness have not fitted easily into a Zeitgeist that emphasises equality, and claims that there are differences between ethnic groups in intelligence led to allegations of racism and widespread scepticism about the value of IQ tests.

Psychologists are also involved in decisions about children who have special educational needs or whose behaviour is problematic to the school. The behaviour of a minority of children has always proved unacceptable to schools and they have turned to psychologists for help in diagnosing individual children and providing remedies. Again, their role has often attracted criticism.

From one point of view, they are seen as supporting the school system in stigmatising disadvantaged and ethnic minority children. From another perspective, they are accused of interpreting failure and disaffection as the ‘fault’ of the individual child without paying sufficient attention to the responsibilities of the educational system or of individual schools. They seem to share the assumption that school is a ‘constant’ and differences among schools are of negligible importance for understanding the behaviour of their pupils.

This assumption has been undermined by recent research into school effectiveness that shows that schools vary considerably in, for example, the incidence of bullying or truancy and that this variation is associated with factors like the quality of leadership, the school ‘climate’, and so on. These findings do
pose a challenge to personality theories and, as we discuss in Chapter 1, there has been a struggle to conceptualise relationships between individual and contextual factors. Nevertheless, explanation at the level of the school should not lead to concentration upon the average rates of achievement, truancy or bullying, with a consequent neglect of individual differences among pupils. Behaviour reflects an interaction between individual and school factors, although this is, as yet, insufficiently understood.

Despite these controversies, educationalists need to be aware of research into personality because one of the principal goals of education should be the personal and social development of students, and understanding the development of personality is essential if the educational system is to meet its obligations to achieve this goal. Difficulties of adjustment can have serious consequences for the individual as well as for the school, and we see in several places in this volume that problems that are manifest in early childhood do predict problems in later childhood and adulthood.

This volume is concerned with individual differences in personality that are relevant to educational experience. The first part comprises two longer chapters. The first of these considers how personality can be studied. One approach is to start ‘in the classroom’, identifying individual differences on specific learning tasks and seeking to establish if they are predictive of educational outcomes more generally. An alternative approach is to apply within education personality concepts that have been established elsewhere. We look at examples of both approaches. Chapter 2 considers evidence for the origins of personality differences obtained from investigations of temperamental characteristics, genetic and heritability research, and longitudinal studies of the impact of significant life events. Hopefully, I will convince you that research has moved on from sterile debates about whether genetic or environmental factors are more important. Current thinking emphasises a complex interaction between these factors, and the notion of ‘developmental pathways’ moves away from simplistic cause and effect explanations.

The second part comprises a set of chapters, each concentrating on one personality trait: aggressiveness, anxiety, motivation, self-confidence, shyness. This particular selection has not been guided by a set of theoretical principles about what constitute the most ‘important’ traits. For example, I have not set out to examine the ‘Big Five’ approach to personality traits, as these impinge upon education. This seemed to me to follow a ‘top down’ model of the psychology of education that informs so many textbooks and that often presents material that is remote from the concerns of those interested in education. Nor did I wish to focus on personality ‘problems’ as if these could be divorced from the variation in
personality that is ubiquitous. Our concern is with the variation that is routinely encountered in the classroom and that can prove challenging to the teacher. The particular set chosen reflects topics that have been the focus of seminar discussions with practising teachers following Masters of Education courses and with undergraduates on psychology of education courses.

The approach taken in these chapters is to review studies that have sought evidence to test theories about individual differences. This book offers a critical evaluation of research literature. This approach requires some justification, as the terms ‘theory’, ‘evidence’ and ‘research’ are now highly controversial within education and, perhaps to a lesser extent, psychology. This is particularly the case if these terms are associated with a view of psychology that is scientific and experimental (or scientist and positivist, to its opponents). There is now considerable interest in exploring alternative conceptions of research, including greater emphasis on personal experience and reliance upon the interpretation of texts of various kinds.

Although I set out to be even-handed in my treatment of psychological approaches (or ‘to sit on the fence’) I found myself concentrating upon empirical studies, often of a traditional kind. One reason for this, I think, is that the educational debate hears many voices, most of them loud, but it does not often attend to evidence, especially evidence that fails to support the speaker’s position. Confident claims are made about how children should be taught, what the curriculum should be, why some students achieve less than others, without very much concern about findings on these questions. If no one else is to be sceptical about claims, then researchers should. I recognise that the forms of debate in themselves are worthy of research and that many qualitative methods are well suited to this.

A further justification is that the research I examined introduced many novel ways of looking at individual differences, and they used empirical methods, often in ingenious ways, to explore these ideas. Experimental methods are typically regarded as devices for finding the holes in theories, but they are also a way of trying out ideas. Studies of intrinsic motivation, test anxiety, self-worth theory, self-handicapping, all illustrate this aspect of empirical research.

Other research seemed exciting because it took on many intractable problems. This is particularly so in studies of the origins and development of personality. For so long, studies relied upon retrospective accounts of early experience but, increasingly, researchers are investing the effort to conduct longitudinal studies that follow people from birth into adulthood. These studies are becoming ever more pertinent as the family structure is changing and raising fundamental questions about the prerequisites for healthy psychological development. Research into genetic influences on personality has also been expanding and has been challenging many long-standing views on development. This research also inevitably raises ethical issues that have yet to be fully discussed.
Psychology is a discipline with many branches, and some of those most central to our concerns – developmental and social psychology, and personality, have been the subject of radical criticisms. This ‘soul searching’ has probably contributed to the changes they have gone through. There is greater emphasis upon phenomenological approaches, and the number of constructs prefixed by ‘self’ – self-consciousness, self-efficacy, self-esteem, self-presentation, self-regulation, self-serving bias, self-worth – emphasises not only the importance for understanding behaviour of how the individual perceives him or herself, but also agency. The person is not the passive product of genes or environment but strives to make sense of his or her experiences and acts in the light of expectations of the future. This view of the person provides the framework for our interpretation of research into personality factors in education.
Part I

Describing and explaining individual differences
Chapter 1

The reality of personality

DEFINITIONS

The aim of this volume is to provide an overview of research into personality as it impinges upon learning. The term ‘personality’ is open to many interpretations. We have in mind differences between students in personal characteristics other than intelligence, but we now attempt to define the term more carefully. The word itself derives from persona, which has its origins in Latin, referring to the actor’s mask and to a character in a dramatic performance. The Concise Oxford Dictionary gives two meanings: (1) being a person; personal existence or identity; (2) distinctive personal character. Within psychology, Allport (1937: 48) has defined personality as:

The dynamic organisation within the individual of those psychophysical systems that determine his unique adjustments to his environment.

Child (1968: 83) provides the following definition:

More or less stable internal factors that make one person’s behaviour consistent from one time to another and different from the behaviour other people would manifest in comparable situations.

There are similarities between these two definitions and also differences of emphasis. Both agree that personality is an internal factor that exerts a causal effect upon behaviour. The person acts upon, or adjusts to, the environment, but his or her behaviour is not a product of environmental forces. Both definitions refer to variation, to differences between people. Both refer to the distinctiveness of an individual’s response to the environment. Hampson construes this in terms of a comparison with the behaviour of other people whereas Allport emphasises the unique constellation of psychological systems within the individual. Finally, Hampson makes more explicit reference to stability and consistency.
Two of the central elements of these definitions, that personality is a causal factor and that it produces stability in behaviour, have been challenged in recent years. There has also been a dispute between those psychologists who prefer to identify the important ways in which people are different from one another and those who argue that each person is an individual and that, although people can be described in terms that are not unique in themselves, ‘clever’ or ‘conscientious’, the person is more than the sum of these descriptions.

Before we discuss these issues, we consider empirical approaches to the study of personality. Educationalists suspect that there are important differences between students, but how are these to be identified and studied? This chapter adopts the following approach. We illustrate the investigation of individual variation, first by discussing a classification derived from the study of approaches to learning. Next we consider the example of field-independence, a trait which arose in the identification of individual variation in a specific perceptual task but which has been shown to have much wider implications. We then consider personality traits, both in ordinary language and in psychological theory. We look in greater detail at Eysenck’s account of extraversion as an example of an explanatory theory. Having reviewed this research, we turn to a critical examination of its assumptions.

THE STUDY OF INDIVIDUAL DIFFERENCES IN LEARNING

Approaches to learning

A useful starting point for consideration of individual differences in learning is an investigation of college students’ approaches to reading academic articles reported by Marton and Säljö (1976). Students read lengthy excerpts from an article and were subsequently posed questions about details in the article and asked to explain to the researcher what it was about. They were also interviewed about how they had set about this task, and the researchers were able to use answers to these questions to identify two approaches, which they labelled as a deep-level and a surface-level approach.

In the former, the student aimed to understand what the article was about, looked for its main points, and analysed the relationships between its arguments and evidence. To quote two of the students, ‘I tried to look for . . . you know, the principal ideas’; ‘I tried to think what it was all about . . . I thought about how he [the author] had built up the whole thing.’ Students adopting a surface approach devoted their attention to the details of the text, often attempting to learn it by rote: ‘Well, I just concentrated on trying to remember as much as possible’; ‘I remembered . . . but, I’d sort of memorized everything I’d read . . . no, not everything, but more or less’ (p.
There was evidence that deep processing led to superior comprehension of the material, a finding that is not surprising given what psychological research has established about the superiority of active and meaningful learning over a passive and rote approach, the facilitation of memorising provided by strategies that make use of elaboration and organization of material, and the beneficial effects of prior knowledge and interest upon the acquisition of new information.

It is useful to know something about differences among students in the ways that they read articles, take notes in lectures or while they are reading, or memorise material, because these are all valued skills in education, but the distinction between deep and surface approaches raises further questions for psychologists. Do these different approaches constitute styles, in the sense that students have a tendency to utilise them across a range of different learning tasks? Are these styles associated with other characteristics of students? What factors influence a student to adopt a particular approach? What are the long-term consequences?

Psychologists have found it useful to tackle these questions by devising questionnaire measures of the extent to which an individual adopts a deep or a surface approach in addition to inferring their approach from interviews with students in a learning situation. The reasons are largely pragmatic. It is very time-consuming to categorise learners on the basis of personal interviews and, accordingly, there is a risk that these studies are conducted with small numbers of participants who may be an unrepresentative sample of the student population. On the other hand, this research has the advantage of looking directly at fairly realistic learning tasks of the kinds that students routinely encounter (although written tests of understanding may be more commonly experienced than interviews), whereas questionnaires are at one remove from these tasks and ask students to describe how they typically behave.

This raises the question of the validity of questionnaire measures: is it legitimate to infer learning styles from students’ self-descriptions of their study behaviour? The use of questionnaires in research into personality is ubiquitous and remains controversial. Respondents might be ‘economical with the truth’, try to create a good impression upon the researcher, deceive themselves, lack insight into their behaviour, be subject to biases in the way they answer questions, or might answer in an entirely superficial way. Those more sanguine about questionnaires argue that if you want to find out something about somebody why not just ask them, why reject in advance what they have to say? The view taken here is that a single study using one questionnaire does not tell us very much. Questionnaire responses need to be compared with other kinds of information about learning styles, and many studies have done this (e.g. Entwistle and Ramsden, 1983). But more important, researchers should undertake a series of studies which approach the behaviours of interest in different ways in order to put together an intelligible account of individual
differences in learning. If this account provides a sound grasp of these matters, then this should be reflected across the measures taken, even measures which may vary among themselves in their sensitivity or validity.

Motivation and learning styles

What other characteristics of students are associated with the tendency to adopt a deep or a surface approach? Students’ educational goals turn out to be important. Biggs (1978) identified associations among students’ beliefs that education is a means of self-development, their interest in learning for its own sake (intrinsic motivation) and learning strategies that were associated with a search for personal meaning. On the other hand, a surface approach was associated with instrumental goals, where courses are regarded as means of obtaining qualifications, and also with students’ fear of failure. Entwistle and Ramsden (1983) similarly found that a deep approach was associated with intrinsic motivation, whereas a surface approach was associated with extrinsic motivation and fear of failing. Nolen (1988) reported similar findings. Deep processing was correlated with task orientation, which reflects students’ goals, specifically their commitment to learning for its own sake, and their beliefs about the causes of success, in particular the belief that success depends on hard work and understanding and not simply memorising material. Finally, Schiefele (1996) found that students who were interested in the topic under consideration were more likely to achieve a deeper level of text comprehension and less likely to have a superficial grasp of the text, when their comprehension of the topic material was assessed by recognition tests.

These studies report further links between learning styles and motivation. A cluster of items that recurs in several investigations identifies well-organised students who adopt effective study methods, who have a strong motive to succeed, and who are very competitive. It should be noted that these factors are clusters of several items, and thus the meanings of deep and surface have widened from classifications of approaches to a specific learning task to labels that summarise a set of correlated approaches to a range of tasks. Thus, for example, a deep approach is not incompatible with the simple rote learning of material, since that type of learning might have a valuable, albeit limited place within an approach that is predominantly concerned with a search for meaning.

These constellations of motives and approaches to learning are correlated with student attainments. In British universities and colleges measures of student motives and learning styles are at least as successful at predicting degree class in the humanities and social sciences as are A-level grades (Entwistle and Wilson, 1977). The tendency to adopt a deep approach is positively associated with progress in university whereas students who adopt a surface approach tend to make less
progress. High scores on surface approach items were associated with lower grades. Schmeck (1983) reported that scales of ‘deep and elaborative processing’ were associated with higher grade point averages among American students. Finally, Nolen (1988) reported significant negative correlations between course grades and measures of belief in the value of surface level strategies and of their reported use among a sample of 14-year-old students.

It has to be admitted that the values of these correlation coefficients are small. There are several reasons why low correlations are unavoidable. For example, students in British higher education are a relatively homogeneous group in terms of their achievements, given that they have already undergone a selection process on the basis of their A-level grades (this presumably contributes to the very low correlations reported between A-level grades and degree class, at least in arts and social science subjects, reported by Entwistle and Wilson, 1977). Also, the measures being compared are rather crude and, in the psychometric sense, unreliable. A single questionnaire that takes only a few minutes to complete may not be an adequate measure of the underlying concepts of learning style or motivation; examination performance might be a poor indication of the outcomes of learning, since it is influenced on the one hand by individual differences in students’ anxiety and examination techniques, and on the other hand by their tutors’ inconsistency in marking essay-type answers.

The fact that these differences in attainment are small should not be taken to imply that they are unimportant. It does mean that we cannot predict with very much confidence any individual student’s achievements on the basis of his or her score on a learning style questionnaire. However, we are able to make statements about trends among the student population. On average, adopting a deep approach results in higher achievement and adopting a surface approach is an impediment to such achievement. To express this in a different way, it is unlikely that among those graduates with first class degrees one would find many students who have reported that they have relied upon a surface approach to their learning.

However, it must be recognised that studies which rely upon correlational methods cannot provide conclusions about the causal relationships between learning styles and achievement. The significant correlations between adopting a surface approach and poor achievement may reflect different mechanisms. It might be that a surface strategy produces poor learning outcomes; alternatively, weak students might tend to favour that strategy. It is interesting in this respect to observe that Nolen (1988) found a significant correlation between students’ perceptions that they lacked ability and their beliefs in the value of a surface approach. Again, correlations do not prove the causal relationship. Students who have come to rely upon a surface strategy might find that their attainments are poor but, in the absence of any insight into their strategy, they might attribute these to their lack of ability. Or
Describing and explaining individual differences

it could be that students in difficulties with a course fall back upon a surface approach: because they don’t understand the material they adopt a rote learning approach in the hope of fulfilling minimum course requirements.

Biggs (1993) has argued that although clusters of associated motives and strategies may characterise students across a range of learning tasks, these clusters may also be sensitive to the context of learning. For example, undergraduates often are more interested in or have particular goals concerning some parts of their course than for others. Contemporary modular degree courses are often wide-ranging in their subject matter and in the skills that students are taught – abnormal psychology might hold greater interest for some students than cognitive psychology, or children’s literature be more attractive than Chaucer – and students might adopt different learning approaches for particular parts of their course. Students might also change their strategy within a given course as they come to perceive the course differently, perhaps when they come to appreciate its relevance, or else a boost in confidence when they receive good grades reduces their fear of failure. The schedule of assessment of a course – the relative salience of unseen examinations, multiple choice tests, essays, project work, group activities – and the tutor’s teaching style are further contextual factors that may influence the adoption of particular learning styles.

We complete this section on learning styles by considering the implications of this approach to the study of individual differences. Psychologists seek to identify such differences among students by setting them learning tasks and talking to them about the approach that they have adopted. Once a potentially significant dimension of difference has been detected, there is an attempt to develop a method for measuring this. In this case, the preferred method is the questionnaire, and statistical analysis has shown that there is considerable similarity among the measures. A sceptical reader might dispute the significance of this level of consensus, given that most of the questionnaires drew upon others in their construction. Nevertheless, it is safe to conclude that independent researchers in different countries can reach similar conclusions about self-reported learning styles. These styles do relate to students’ motivations for learning and to their achievements in the educational system. Teachers ‘know’ that their students are different, but educationalists are not always clear on the nature or extent of these differences and have not approached in any systematic way the task of arranging teaching and assessment methods that would reflect this variation. The research we have summarised begins to address these questions.

The findings about the correlations between approaches to learning and students’ goals caution against any simple idea that one approach is ‘best’ (best for whom?) or should necessarily be encouraged. Nevertheless, surface, simple reproduction, or rote approaches are unlikely to produce successful outcomes, other than serving as