

Emotional disorder and educational underachievement*

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Of all the problems seen in school-aged children, learning disorders are among the most common. These disorders are first the concern of the school teacher and school psychologist, but many cases get referred to medical specialists of various kinds. Paediatric referral may be initiated because quasi-neurological syndromes such as 'developmental dyslexia' (Critchley, 1970; Naidoo, 1972) or 'dyscalculia' (Cohen, 1961; Slade and Russell, 1971) are suspected; or because the learning difficulty is associated with cerebral palsy, epilepsy, or some other overt neurological condition (Rutter, Graham, and Yule, 1970a); or because it seems that the learning disorder had its origin in a developmental speech delay (Ingram, 1969; Rutter and Martin, 1972). The importance and significance of neurological and developmental factors in learning disorders have been considered elsewhere with respect to reading (Rutter and Yule, 1973).

However, children with educational underachievement commonly suffer from the additional handicap of emotional or behavioural disorders. The fact of this association has long been noted, but its meaning remains poorly understood. There has been controversy over the extent to which emotional disturbance causes learning difficulties, the extent to which learning disorders result in secondary maladjustment, and the extent to which both the learning and emotional disorders stem from some common causal factor. Nevertheless, it is essential to understand the mechanisms involved in the association if the appropriate remedial or therapeutic action is to be taken. This paper reviews what is known on this topic.

Definition and measurement of educational underachievement

Before discussing research findings on the associations between underachievement and

emotional disorder it is necessary to consider first the definition, measurement, and classification of educational underachievement. Obviously, underachievement is not something that is simply present or absent. It is a matter of degree. Very few children will perform *exactly* at the level expected. Most will have scholastic achievements somewhat below or somewhat above expectation, and it is mainly when achievements are a lot below expectation that there has to be concern. The questions then are: what should be the expected level of attainment for any child?, and how do you decide what is a lot below that? Essentially these are statistical questions which require statistical solutions once the psychological and educational concepts have been defined. The issues are complex and have been considered in detail elsewhere (Berger, Yule, and Rutter, 1974; Rutter and Yule, 1973, 1974; Yule *et al.*, 1974), so that only a brief summary of the main points will be given here.

The simplest approach to defining underachievement is to compare a child's attainment with the average for children of the same age. That provides some guide to a child's scholastic progress but it does not give a measure of what level of attainment should be 'expected' because it fails to take IQ or mental age into account. It is appropriate to expect a child of high IQ to have above-average attainments, just as a child of low IQ may be expected to have below-average attainments. That follows because there is a substantial positive correlation between intelligence and educational attainment. For a long time it has been customary to take intelligence into account by comparing educational age with mental age. Thus, if a 10-year-old child with a mental age of 13 years had a reading age of 12 years, he might be said to be 1-year retarded in reading. While that sounds reasonable and while such an approach has been widely followed, it is in fact based on a misconception and gives rise to serious error. In reality, the child mentioned should *not* be expected to have a reading age of 13 years. Rather, the

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expectation should be for a reading age of about 12 years—exactly what he had (Rutter and Yule, 1973; Yule *et al.*, 1974). The explanation for this apparent paradox lies in the 'regression effect'. If the correlation between reading and intelligence were unity (i.e. +1.0), then, of course, mental age and reading age should run exactly in parallel. But where the correlation falls short of unity (and that between IQ and reading is about +0.6), then the two will differ. A highly intelligent child will have above-average attainments but his attainments will generally not be as high as his intelligence. Conversely, a retarded child will have below average attainments but his attainments will generally be above his intelligence. In short, in each case there is a 'regression to the mean' so that the attainments are nearer average than is the intelligence. This has nothing to do with the qualities of intelligence or of reading, but is simply a consequence of the fact that the correlation between intelligence and scholastic attainments is less than unity (Thorndike, 1963).

The conclusion that reading age and mental age should not run exactly in parallel follows inexorably from the correlation between reading and IQ (or for that matter, between any attainment and IQ) and from the fact that overachievement occurs with approximately the same frequency as underachievement. But psychologists and teachers alike have been astonishingly reluctant to accept this fact. Nevertheless, it is a fact in practice as well as in theory as we have now confirmed in 5 separate surveys (Yule *et al.*, 1974). The unavoidable conclusion is that studies based on either the achievement ratio or on discrepancies between achievement age and mental age are invalid and misleading. Unfortunately, this rules out most research in this area (Rutter and Yule, 1973). The appropriate procedure—and the only one that avoids this problem—is the use of some kind of regression equation in which achievement is predicted on the basis of the observed correlations between educational attainment, age, and IQ in the general population. The procedure is described in more detail elsewhere (Yule, 1967; Rutter, Tizard, and Whitmore, 1970b).

The next question is how far below expectation must a child be before there should be concern about underachievement? Again statistical considerations are relevant. The same regression procedure provides an estimate of the expected frequency of different degrees of underachievement, so allowing underachievement to be defined in terms of a degree of educational failure which is relatively infrequent in the normal population. In this connexion it should be noted that the findings of our epidemio-

logical studies show that extreme degrees of underachievement in reading occur at above the expected level as a result of a 'hump' at the bottom of the curve of distribution of achievement in reading (Rutter and Yule, 1973; Yule *et al.*, 1974). However, considerations of frequency are not enough to pick the most appropriate cut-off point. Prognosis is also important. There must be most concern over the child who is unlikely to 'catch up' with his contemporaries. So far as reading is concerned, follow-up studies (Yule, 1973; Rutter and Yule, 1974) show that there is a very poor outlook for children whose reading is more than 2 standard errors of prediction below expectation (this cut-off point picks up between 3 and 10% of the general population). Other educational considerations are also important. The degree to which a child *suffers* from underachievement will depend not only on the degree of underachievement and the course of development, but also on educational practice. The underachieving child is more likely to suffer from his disability in schools where educational failure results in segregation and opprobrium. Also the extent to which he is at an educational disadvantage will depend on the attainments of other children in his class, the degree of streaming, and the extent to which teaching is individualized rather than group based. These and other considerations will necessarily influence decisions on when and how to provide special help for the underachieving child (of good intelligence or otherwise).

Classification of underachievement

Having defined underachievement, the next issue is how to classify the different varieties of underachievement. Three distinctions have to be made. First, underachievement may be classified according to the scholastic skill involved. Most attention in published reports has been paid to reading and spelling, two skills which are very closely associated. However, there has also been a concern with mathematical disabilities and, to a lesser extent, with other subjects. Surprisingly little attention has been paid to the similarities and differences between underachievement in different scholastic subjects.

The second distinction is between general backwardness (i.e. low achievement in relation to the average for that age, but without taking IQ into account) and specific retardation (i.e. achievement which is low after taking both age *and* IQ into account). In the first case there tends to be low IQ and generally low attainments, whereas in the second there is a specific educational disability which is *not* explicable in terms of low intelligence. The

distinction has been most studied with respect to reading, and has proved to be of crucial importance. Specific reading retardation differs markedly from general reading backwardness in terms of sex distribution, neurological correlates, developmental abnormalities, association with other educational problems, and prognosis (Rutter and Yule, 1973, 1974; Yule, 1973). Specific reading retardation is strongly associated with spelling difficulties but attainment in other school subjects is less affected. Underachievement in mathematics and in other aspects of schoolwork has been less investigated and it is not known whether the differentiation between general backwardness and specific retardation applies in the same way.

The third distinction is that between a failure to acquire educational skills and a loss of these skills. Specific reading retardation and general reading backwardness both apply to the former situation. The children have had difficulties in learning to read from the very outset. However, there is also the situation in which a child having got well launched in his school work and having mastered the basic skills, later runs into educational difficulties and falls increasingly behind in his work. Sometimes these later difficulties involve specific school subjects and sometimes they involve school work generally, or even all learning. Either way the disorder is of a quite different type to the variety in which there is a failure to acquire the initial skills.

'Dyslexia'. In discussing the classification of underachievement, no mention has been made of 'dyslexia'. That is deliberate, as there is so far no evidence for the existence of such a unitary syndrome, at least as usually defined (Rutter, 1969; Reid, 1968; Rutter and Yule, 1974). Of course, the concept of specific reading retardation has much in common with 'dyslexia', in that both refer to a specific educational disability and in that there is good evidence for linking reading retardation with developmental delays in speech, language, sequencing, and right-left differentiation, as postulated for 'dyslexia'. However, the features said to characterize 'dyslexia' do not cluster together as they should if there were a single 'dyslexic' syndrome (Rutter, 1969; Naidoo, 1972), and there is evidence that psychological, social, and educational factors interact with biological influences to produce specific reading retardation (Rutter and Yule, 1973, 1974). There may be a unitary condition of 'dyslexia', but there are no means at present of diagnosing it and the available evidence is consistently against the concept of a single neurological syndrome. It deserves further study, but at the

moment there are no good grounds for separating off a special syndrome under the heading of 'dyslexia'.

Association of specific reading retardation with emotional or behavioural disorder

With these basic distinctions in mind, we need now to turn to the association with emotional or behavioural disorders. There have been numerous clinic reports on this matter but these are potentially misleading because of selective biases in referral policies to clinics. Instead, epidemiological studies must be considered. The Isle of Wight study (Rutter *et al.*, 1970b) showed that both specific reading retardation and general reading backwardness were strongly associated with antisocial or conduct problems. Of the children with specific reading retardation, 25% showed antisocial behaviour as measured on a questionnaire completed by teachers—a rate several times that in the population at large. It was striking that whereas there was some tendency to an increased rate of emotional disturbance in reading-retarded children, the strongest association was with antisocial behaviour. As reading difficulties and antisocial behaviour are both relatively common problems in childhood, some overlap would be expected purely on a chance basis. However, the strength of the association was many times that which would result from chance. The association was a strong and meaningful one. The findings from other epidemiological studies are similar (Sturge, 1972; Berger *et al.*, 1974; Sampson, 1966; Clark, 1970; Davie, Butler, and Goldstein, 1972).

Douglas's National Survey (Douglas, Ross, and Simpson, 1968) has analysed the association in a different way by looking at the *average* attainment of children showing emotional or behavioural difficulties. The youngsters showing persistent aggression or conduct disorders were found to have low achievement in all subjects—including mathematics as well as reading. Emotional difficulties were associated with low intelligence and low attainment and were not specifically associated with underachievement.

In short, though the evidence is strongest in the case of reading difficulties, it appears that underachievement in all subjects is associated with behavioural disturbance. There is some association with emotional difficulties but the stronger association is with disorders of conduct. The association appears early in the child's school career and persists throughout it.

Most studies have not made the distinction between failure to acquire educational skills and the later loss of these skills, so that it is not possible to

determine whether the associations differ in the two cases. So far as can be determined, the association with conduct disorder applies particularly to the children who fail to acquire educational skills. Less is known about children who develop underachievement only later in their schooling, but clinical experience suggests that the picture is rather different (de Hirsch, 1963).

Mechanisms. Accepting the existence of an association between underachievement and conduct disorders, the next issue concerns the mechanisms underlying the association. In this connexion, the first question must be directed to the problem of the *direction* of the association. Does underachievement lead to conduct disorder, does conduct disorder lead to underachievement, or are both due to a common aetiology? This is a complex problem to which no simple and straightforward answer is yet available. Furthermore, the answer may not be the same for different varieties of underachievement.

Let us start with specific reading retardation. Could this develop as the result of a neurosis or some other form of emotional disturbance? It has certainly been claimed that retardation in reading may be due to neurotic conflict or to an 'emotional block' (Blau, 1946; Pond, 1967). However, this view is based on uncontrolled studies of clinic populations (e.g. Miller and Westman, 1964; Silverman, Fite, and Mosher, 1959; Sperry *et al.*, 1958) or on highly speculative psychoanalytic interpretations (Anthony, 1961). Satisfactory evidence in support is lacking. Contrariwise, there is evidence against the view that specific reading retardation is due to neurosis. In the first place, the association is *not* particularly with emotional disturbance; it is with disorders of conduct. This is not a 'displacement' of neurosis, as it is the presence of antisocial symptoms and not the absence of neurotic symptoms which is associated with reading retardation. Secondly, the characteristics of reading retardation with respect to both sex ratio and prognosis are quite different to those of neurosis. Thirdly, there is good evidence that specific reading retardation is due to other factors. A wide range of neurodevelopmental functions tend to be impaired in retarded readers. These do not constitute a specific pattern, but speech and language difficulties and problems in sequencing are those most strongly and consistently associated with reading retardation. Right-left confusion, motor impersistence, and weak intersensory integration are also important to a lesser extent. The exact cause of this developmental impairment remains uncertain but almost certainly it is multifactorial, involving both biological factors

and lack of the necessary life experiences. These interact with particular temperamental attributes and adverse school influences to produce specific reading retardation (Rutter and Yule, 1973). In short, specific reading retardation has many factors important in aetiology but, except rarely, neurosis does not seem to be one of them.

Does this mean that emotional disorder is of no importance in children with specific reading retardation? It does mean that the available evidence suggests that emotional disorder is not important as a *primary* cause of severe reading retardation.* However, as a secondary influence it is much more important. Children, particularly intelligent children, who fail to learn to read are likely to be continually faced with negative responses to their failure. School reports are likely to say 'doesn't try', 'could do better', or 'not working up to his capacity', when from the child's point of view he is doing all he can but without any sign of success. School becomes a negative experience which is strongly associated with failure and with the adverse social responses to his failure. By the time people are considering whether he needs special help he is likely to have 'given up', and the remedial teacher is faced with a discouraged, miserable child who lacks confidence and feels he cannot succeed whatever he does. This is particularly likely to happen with reading difficulties because reading is the key to almost all learning in school. Unless the child can read his textbooks or understand what the teacher writes on the blackboard, he is to a considerable extent cut off from learning in other subjects as well (Rutter *et al.*, 1970b). Though not the prime cause of reading retardation, emotional and motivational factors probably are important in the *continuation* of reading difficulties. As a consequence, the remedial teacher's first task will usually be to increase the child's confidence and motivation to learn and to establish an appropriate learning set.

These are important matters but still they do not resolve the meaning of the association between reading retardation and conduct disorder. The most fruitful approach to this issue is to study children with both problems, in order to determine whether they have more in common with purely antisocial children or with purely reading-retarded children. This strategy has been followed in the Isle of Wight study (Rutter *et al.*, 1970b), the more recent investigation in an inner London borough (Sturge, 1972), and in the Inner London Education Authority's literacy survey (1973). In

*It is possible that emotional factors may be more important in the genesis of milder reading retardation, but there is very little evidence bearing on this point.

both the Isle of Wight study and the I.L.E.A. survey the antisocial retarded readers were much more like the 'pure' retarded readers than the 'pure' antisocial children. This finding suggested that in *some* cases antisocial disorder might arise as a result of educational failure. With status and satisfaction through schoolwork denied him, the reading retarded child might rebel and seek satisfaction in activities running counter to everything for which the school stood. The London analysis by Sturge (1972) agreed with this finding in part, but with some variables the antisocial retarded readers occupied a middle position between the purely retarded readers and the purely antisocial children. However, there was no evidence that antisocial disorder led to reading difficulties. Taking all the findings it seems that at least three processes are operating. First, at least in a big city population, the family influences leading to reading retardation overlap considerably with the family influences leading to antisocial behaviour. This is another example of the truism that a depriving environment tends to be depriving in many respects (Rutter, 1972). Secondly, there are probably some features in the child which tend to lead to both types of handicap. This applies both to temperamental characteristics and to organic brain dysfunction. Thirdly, reading failure itself may be a potent source of discouragement, loss of self-esteem, and antagonism which in some cases may contribute to the development of disturbances of conduct.

In summary, it may be concluded that emotional factors probably play only a minor role in the primary *causation* of severe degrees of specific reading retardation, though motivational influences may often be more influential in the *continuation* of reading difficulties due to other basic causes. On the other hand, underachievement in reading may sometimes lead to psychological disturbance and there is a strong association with disorders of conduct, an association which probably stems from several different mechanisms.

Other learning disabilities and emotional disorder

So far, this paper has been concerned with specific reading retardation, the educational disorder about which most is known. However, as noted in the discussion of the classification of underachievement (see above), there are several other varieties of learning disability. First, there may be a specific retardation in other scholastic skills (such as arithmetic), or there may be the development in later childhood of learning inhibitions which involve a

failure to make further school progress after an initially successful start.

Much less is known about either the causes or the emotional correlates of these other learning disorders. In the case of arithmetic, psychoanalysts have suggested that there may be an inhibition of ego functions resulting from castration anxieties (Vereecken, 1965), but these remain fanciful speculations which so far lack supporting evidence. More attention has been paid to disorders of learning which involve, not just an educational skill, but rather learning in general (Buxbaum, 1964; Rubinstein *et al.*, 1959), especially when this arises later in childhood after a successful early start (Pearson, 1952). Over 20 years ago Pearson outlined some of the ways in which learning inhibitions may arise as a result of emotional disorder. However, there was a lack of evidence at that time upon which to base any assessment of the relative importance of the various mechanisms, and the situation today is little better. Accordingly, it is not possible to state how these learning inhibitions actually arise. It is only possible to discuss how they *might* arise. Six possible mechanisms will be considered—temperamental influences, anxiety, stress at a critical period, lack of motivation, avoidance of learning, and generally impaired psychological function.

(a) **Temperamental features.** The strong associations between children's temperamental attributes and specific reading retardation have already been noted. Poor concentration (on tasks other than reading), fidgetiness, restlessness, and impulsiveness are the traits most consistently associated with reading retardation (Rutter and Yule, 1973). Whether these traits are also associated with underachievement in other areas is not known. However, attention is an important part of any learning task and pupils who have difficulty maintaining their attention because of impulsiveness, restlessness, distractibility, or short attention span are likely to be impaired in many aspects of learning. Hence, these factors are probably important in all types of underachievement present from the outset. There has also been wide interest in the relation between general personality variables, such as extraversion or neuroticism, and learning. The studies on these variables have usually involved the study of average performance in various groups and there has been less study of children with underachievement. This makes the findings difficult to interpret, particularly as the findings are in any case complex and contradictory. In some groups extraversion is associated with

higher achievement and in other groups with lower achievement. The same applies to neuroticism. These variations in findings appear to be associated in part with differences in ability level, in age, and in sex (e.g. Entwistle and Welsh, 1969; Eysenck and Cookson, 1969; Entwistle and Cunningham, 1968; Kline and Gale, 1971; Leith and Davis, 1972). It may well be that with further study sense will be made of these findings, but at the moment the correlations are too low and too variable for any conclusions to be drawn about their possible role in underachievement.

(b) Anxiety. The same applies to the effect of anxiety on learning. It is usually said that a little anxiety helps learning but too much anxiety interferes with it. Also it has been thought that high anxiety is most beneficial for simple tasks but lower levels of anxiety are optimal for difficult tasks. This sounds reasonable and there may well be something in it, but the research findings are rather contradictory and cannot be said to give unequivocal support to this view of the relation between anxiety and learning (see references on neuroticism, also Lynn, 1957; Sarason, 1963; Levy, Gooch, and Kellmer-Pringle, 1969). Probably a lot depends on the child's attitude to the task, the setting in which the learning takes place, and the responses he has previously encountered after success and failure. Certainly, there is no straightforward relation between anxiety and underachievement.

(c) Stress at a critical period. Quite apart from current anxiety, it might be suggested that underachievement arose because of stress or anxiety during an earlier critical period when the basic learning skills were being established. This remains a theoretical possibility, but first there is no satisfactory evidence that any such critical period for learning exists (Rutter, 1972) and, secondly, there is no evidence that children with underachievement experienced stress or anxiety in early life more often than do other children. However, the issue has yet to be systematically studied.

(d) Lack of motivation. Learning requires attention and involvement in the task and these variables will be influenced by the child's interest and motivation. Comment has already been made on the lack of motivation which commonly arises *after* educational failure, but also lack of motivation may be a prime factor in leading to certain kinds of underachievement. Again, systematic research is lacking. However, both clinical and educational experience suggest that motivation is often an

important variable in school learning. The studies of Douglas (1964) and Wiseman (1964) have shown that children's educational attainments are significantly associated with the attitudes of their parents towards schooling. The exact mechanisms involved in this association are not known but probably an effect on the child's interest and motivation is one of them. Later in schooling, children may lose interest in their schoolwork for other reasons and their attainments may suffer accordingly.

The child's interest and involvement in learning will also be increased by his identification with the person (either teacher or parent) associated with the learning process and by his seeking to please him by his learning success. Conversely, a bad relationship may interfere with learning.

More specifically, the child may work less well because his attention is deflected onto other things (Pearson, 1952). This may occur, for example, with worries about difficulties at home, with sexual preoccupations, with daydreams, or with obsessional ruminations.

(e) Avoidance of learning. In addition to all these factors, children may show underachievement because of a positive avoidance of learning (either in general or with respect to a specific subject). Most obviously this is evident in those adolescents whose work falls off as part of a rebellion against adult values. Some intelligent children come to reject education as something which is worth working for and as a result their educational attainments may suffer.

In other cases, learning comes to be associated in the child's mind with pain or unpleasant feeling. This situation may arise where a parent or teacher keeps punishing a child for not learning properly (Pearson, 1952). Eventually the child may come, by generalization, to associate learning with punishment and so avoid it. This may apply to one school subject or to learning in general. The same phenomenon may result if the child's peer culture regards schoolwork as cissy and to be despised. If the child is teased and tormented as a 'swot' by his friends when he does his schoolwork well, he may learn that scholastic success is to be avoided.

Alternatively, it has been argued that schoolwork may be avoided because learning has become involved in a neurotic conflict. In these cases learning is inhibited because of its symbolic associations. Thus, it has been suggested that reading may come to have a sexual connotation so that reading is associated with sexual 'looking' (Jarvis, 1958). The only study to test this

hypothesis gave equivocal findings (Walters, van Loan, and Crofts, 1961), and it remains unknown how commonly underachievement is due to this or any other type of neurotic conflict. On a more conscious basis, certain school subjects may come to have a masculine or feminine identity and be favoured or avoided for this reason.

(f) Impaired function. Finally, underachievement may arise because of general impairment of a child's psychological function. This most commonly happens in association with depressive disorders in adolescence, but it also occurs in a more serious fashion with schizophrenia beginning in this age period (Offord and Cross, 1969).

Conclusions. It must be emphasized that these various mechanisms by which emotional disturbance may lead to underachievement have, with very few exceptions, not been subjected to systematic investigation and their importance remains a matter for clinical judgment. Of all the varieties of underachievement, specific reading retardation has been most studied. In the case of this disorder, the available evidence suggests that emotional disorder does *not* play an important part in aetiology though motivational factors are more influential in the continuation of difficulties. Though reading retardation shows a strong association with conduct disorder, the mechanisms involved in the association are complex and are not well understood. Several factors probably play a part in the association, but it appears that only rarely does conduct disorder lead to reading difficulties. It is likely that emotional factors play a greater part in the learning inhibitions which arise later in childhood after initial success. However, which mechanisms are most important in this connexion is still not known.

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