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AUTHOR Mortimore, Peter
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ABSTRACT

This paper draws on school-effectiveness research to address issues concerned with effective learning and effective teaching, and the role of the school in promoting these processes. The following questions are addressed: What do we know about effective learning and teaching? How does the effective schools research contributed to this debate? What are the relevant mechanisms? and What are the lessons for school improvers? Mechanisms associated with effectiveness include strong, positive leadership; high expectations; monitoring of student progress; an active student role; rewards and incentives; parental involvement; joint planning; and a focus on learning. Lessons learned from school-effectiveness work point to the need for planning; focusing on ends, rather than means; and working toward worthwhile ends. The above factors are means toward the end of effective learning, which may change as schools of the future change. (Contains 84 references.) (LMI)

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SCHOOL EFFECTIVENESS AND THE MANAGEMENT OF EFFECTIVE LEARNING AND TEACHING

Peter Mortimore
Institute of Education
University of London

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Abstract

The Effective Schools research has focused thinking on effective learning as one of the major outcomes of schooling. Unfortunately, research findings on effective learning are as limited as are theories of learning itself.

Because mental activity is covert, learning can only be inferred from subsequent responses. Linking such concepts as ability, motivation, self-efficacy and perseverance - in an integrative way - is difficult.

Even though, unlike learning, teaching is an *overt* activity, the models that have been constructed fail to do justice to the complexity of their components. The respective roles of modelling, expectations, instruction and feedback, for instance, are not well understood.

Also missing are empirically-tested mechanisms that bind together learning and teaching activities into a causal model. The School Effectiveness research, however, has identified a number of correlates or associated factors which operate at both the classroom and the whole-school level.

This paper will endeavour to review this area of research.

Introduction

This paper attempts to get to the heart of school effectiveness. It addresses issues concerned with *effective* learning and *effective* teaching, and the role of the school in promoting these processes. In endeavouring to distinguish between the two processes - and to relate them together - I will draw on our knowledge of school effectiveness research.

Whilst there is a lack of experimental evidence which could point to *causal* connections, research - carried out in a variety of countries over the last 20 or so years - has identified a number of characteristics that are associated with schools that appear to be particularly effective. Some of these characteristics concern the *ends* of schooling - the promotion of effective learning and the attainment and progress of students. Others relate to the *means* of effective schools. such as effective teaching, planning, use of resources and staffing policies.

The specific questions to be addressed are:

- what do we know about effective learning
- what do we know about effective teaching
- how does the effective schools research contribute to this debate
- what are the relevant mechanisms
- what are the lessons for school improvers?

What do we know about effective learning?

Other presenters at this Congress will focus, in greater detail, on this question. I wish to address it only in a relatively general way. Unlike the technical meaning which is often attributed to the term *effective* in connection with the effective schools research (see later), I shall use it to indicate the acquisition of knowledge. understanding or skill in a way which:

has taken as little time and effort as possible

can easily be assimilated and accommodated with other learning

will endure for as long as it is deemed to be relevant by the learner

Theories about learning

A number of different theories about learning have been proposed but, because learning is a covert process not amenable to direct observation - even at a physiological level - these have had to be postulated on the basis of inferences made about the prior and the subsequent

behaviour of the learner. One obvious difficulty of such a methodology is that the observer can never be certain as to quite *what* has been learned: a specific item of information, a better understanding of its characteristics and of how it relates to previously held knowledge, a better notion of how to learn more effectively or, indeed, a mixture of all of all three.

In general theories of learning do not appear to have influenced the work of teachers a great deal. There have, however, been some exceptions such as the work of Piaget, Vygotsky and a number of North American psychologists. Piaget's (1955) theories are based on the notion that children proceed through increasingly complex stages of learning. According to him, each stage has to be worked through and each child needs to come to terms with the world in which they live through the twin processes of assimilation - whereby they take in information about the external environment -and accommodation - whereby they *rearrange* their knowledge and understanding in order to come to terms with and exploit the new information. Gipps (1992) reports that Piaget's model is now widely criticised on the grounds that he underestimated the influence of language and, furthermore, that the dependence of his theory upon rigid stages has led to a legacy of low expectations for young children.

In contrast, Vygotsky (1978) - whose work is currently receiving renewed attention - developed a theory in which language and thought were seen as twin processes: the one helping the other. As Gipps (op cit) notes, Vygotsky's notion of *proximal* development - whereby it is believed that children can perform tasks normally beyond them, with the help of an adult - can be used as a basis for maintaining high expectations.

American research on learning theory has long been much influenced by behaviourism. Work by psychologists such as Thorndike (1898), B F Skinner (1938) and Hull (1952) and social learning theorists such as Bandura (1974) have developed the idea that learning can occur simply as a result of a response to a particular stimulus. Critics, however, argue that behaviourism treats the learner as passive only able respond when stimulated.

In contrast to this view, other theories place learners in a more active role, seeking to build up their knowledge and their skills through experience. Carroll (1963), for instance, proposed a model of school learning in which three factors to do with the learner (aptitude, ability to understand instructions and perseverence) were brought together with two teaching factors (clarity of instruction and matching the task to the student) in the context of the opportunity to learn. The Carroll model forms the basis of a number of other theories including that of Bruner (1966), Bloom (1976), and Glaser (1976). All these models recognise the importance of individual differences amongst the learners.

A relatively new strand of work on learning concerns what is known as 'Self-efficacy' (Wood and Bandura, 1989). In this work the learners' beliefs in themselves are reinforced or reduced and the effects on achievement noted. In general, the stronger the feeling of 'Self-efficacy' the better the level of achievement. Moreover, the individual's feeling is affected by the school attended. If the teachers hold positive views about ability and about their teaching skills then they are more likely to produce academic learning in their classrooms (Bandura, 1992).

A further development of models of learning came with the introduction of the theory of adaptive instruction (Wang et al, 1990). This theory positioned the learning of the individual within the learning environment of the school and hypothesised that the better match of the two would lead to optimum learning.

In the mainstream of cognitive psychology, there is now a general acceptance that learning is likely to be affected by the intellectual, linguistic and social context in which it is attempted. Researchers such as Light and Butterworth (1992), have stressed the importance of context in relation to what they term as *domain-specific* thinking skills. Interestingly, a different view - that there are *general* thinking skills that can be taught - has been put forward by Adey and Shayer (1990) on the basis of their work in a cognitive acceleration in science program. In this pioneering study, they found that learners could be taught to *think* about thinking through the use of experimental strategies. They report the benefits of this approach were apparent not only in the results of subsequent science tests, but also in those of mathematics and English.

There is no shortage of interesting theories and models of learning but there is a danger in assuming that *school* learning is the same as *learning in general*. Resnick (1987) has suggested that there can be differences between the two and that, in particular, school learning is often aimed at *pure* rather than *applied* thought, and that it is *individual* rather than *collaborative*. One attempt to relate school and life learning draws on the adaptation of attribution theory to the school setting. Dweck and Repucci (1973), for instance, have argued that girls and boys attribute failure to quite different causes and that their teachers, often unwittingly, provide differential feedback to them. They argue that, as a result, *learned helplessness* can be induced. The poor performance of boys in language-based subjects and of girls in technology-based subjects may be linked to this process.

So what do we *know* about effective learning? We know, or can reasonably infer, that it is

- active rather than passive
- covert rather than overt
- complex rather than simple
- affected by individual differences amongst learners
- influenced by a variety of contexts.

It is this last point that, perhaps, is most relevant to those interested in school-effectiveness and improvement. The second question to be addressed concerns effective teaching.

What do we know about effective teaching?

As with my earlier discussion on learning, this question will only be examined at a general level. Those seeking detailed information should consult specialist sources such as Wittrock (1986). Unlike learning, teaching is an *overt* activity and should, therefore, be easier to describe and evaluate. Disappointingly, however, the many descriptions and evaluations that have been recorded since the days of Plato and Aristotle, and the resulting theories and models tend not to do justice to the complexity and sophistication of the activity.

The problem with models such as those put forward, for example, by Scheffler (1967) is that they are not sufficiently different. The effective teacher is likely to range across models, trying aspects of each, as and when deemed necessary. It is for this reason that energy has gone into attempts to categorize, more specifically, theories of teaching styles. Beginning with the work of Dunkin and Biddle (1974), researchers have sought to categorize the different aspects of practice they have observed in classrooms. In the UK the work of Bennett (1976) is probably the best known though his conclusion, that particular styles of formal teaching made a significant difference to the performance of learners, has been considerably qualified (Bennett, 1987). His latest work in this area presents classrooms as much more complex environments than previously believed, for both teaching and learning (Bennett, 1988).

In our work on a large sample of London's primary schools (Mortimore et al, 1988), my colleagues and I endeavoured to classify teachers' styles into particular categories on the basis of our detailed classroom observations. Whilst traditional methods of cluster analysis delivered as many groups as we needed, using more sophisticated analyses - with the technique pioneered by Aitken, et al (1981) known as probabilistic cluster analysis - we found that we were unable to identify stable groups. The activities of the teachers in our sample appeared to be too complex: they switched across styles, depending on the task, too frequently to be classified.

In general, there has been greater interest in the United States than in many other countries in research on effective teaching. In the 1980s, for instance, research in this area included the work of Light and Smith (1971), Bloom (op cit), Glass (1977), and Gage (1978). According to Walberg (1986), who carried out a synthesis of much of this research, large-scale meta-analysis identified a number of common factors across a range of studies. The functions that he has identified as being most important are:

social and psychological environment

home factors

the influence of the media and television

the influence of peer groups

the aptitude of students

the scope of homework

the scope of extra-curricular tuition.

This list reflects a number of problems and limitations of using meta-analysis technique - it contains many different variables reflecting the different kinds of studies. Such a list, however, is a useful amalgam of the work of researchers over a period.

In Britain a quite different approach stems from the work of Her Majesty's Inspectors (HMI, 1982; HMI, 1988). In its 1982 Survey, HMI focused on the following factors:

relationship with pupils

classroom management

planning and preparation

aims and objectives and their achievement

choice of materials

marking

the match of work to pupils

question and answer techniques.

Such a list appears reasonable but, again, incorporates very different kinds of activities: some relate to the preparation of materials; some to interactions with pupils; and some to the use of educational judgement.

In their second survey, HM Inspectors focused on a slightly different list:

classroom organisation

planning and preparation

match of work to pupils

classroom inter-action

mastery of subject

competence in teaching skills.

It is interesting to compare the contents of the two lists and to note the addition, in the second list, of the term *competence*. In an overall assessment of the sample, HMI found that 43 per cent of the primary teachers, and 57 per cent of the secondary teachers, displayed a

high or relatively high degree of competence. Twenty per cent of primary and eleven per cent of secondary teachers *"lacked some or many of the basic teaching skills..."*(p 24).

The term *competence* is interesting, however, in its own right. It has been used commonly in the United States (Hall and Housten, 1981) but is less common in the United Kingdom. In the recent times, however, it has been used by the British Government in its review of teacher education. In a 1992 speech, the then Secretary of State referred to the term *"...providing that students do achieve the required competences..."* Clarke. (1992, p 16). As a result of this speech, the criteria for the approval of teachers' courses have been re-written in order for them to be based on the use of competences rather than the number of hours devoted to particular aspects of training.

The literature on expectations is interesting. Merton (1948) first introduced the idea of a self-fulfilling prophecy which could either be a negative or positive prediction. The first experimental evidence for such a phenomenon came from Rosenthal and Jacobson (1968). In a cleverly contrived study they provided selective (and untrue) information about certain pupils. Teachers were told that some pupils were likely to 'bloom'. The researchers claimed that these predictions were achieved and they explained this by recourse to the self-fulfilling prophecy. Although the original experiment by Rosenthal and Jacobson has not been replicated, large scale reviews of the area (Brophy and Good, 1974, and Pilling and Pringle, 1978) provide considerable evidence about the potential power of such expectations.

It is not hard to understand how extreme expectations, of either a positive or a negative nature, can prove a powerful factor in teaching. We all, surely, try to live up to *high* expectations about us. Similarly, obvious *low* expectations about our performance can easily trigger a mechanism whereby we sink to a performance level in line with the low expectations being transmitted. For a pupil who is regularly taught by a teacher with low expectations the experience can be demoralising and, too often, leads to serious underachievement.

Modelling, also, has an extensive psychological literature. The concept works on the premise that we are influenced strongly by role models (Mowrer, 1960). We like to do what others - especially those in authority - also do. For teachers this mechanism is important since there are few neutral models -they are either good ones or bad ones! In many schools the power of modelling is eloquently demonstrated in the way that particular classes take on the characteristics of their form teacher or personal tutor.

These two psychological phenomena have informed our views on teaching, but new studies are needed in order to clarify the issues further, and to identify how teachers can use such mechanisms positively in their daily work.

At the 1990 ICSEI Conference, I presented a paper on Teacher Training for Effective Schools (Mortimore, 1992). In this paper, I drew attention to some of the knowledge and skills that are needed for the task of teaching. Briefly, I argued that *curriculum knowledge* needed to be sound in principle and detailed in scope. I also argued that *pedagogical knowledge* - though sometimes described in rather derisory terms as *theory* was frequently neglected. I suggested that a focus on the skills of presentation, as well as an understanding

of how learners learn, and how subject knowledge can be transformed so as to be appropriate for pupils of different ages was crucial. *Psychological knowledge* was also essential - in my judgement - for teachers, so that they can understand how young minds operate and how young people cope with different cultural patterns and family traditions. *Sociological knowledge* of the way factors such as race, gender, class or religion operate to help or hinder successful teaching, I argued, was also extremely important. Finally, I suggested that school and classroom *process knowledge* - the meat and drink of school effectiveness work - can provide teachers with ways of planning and monitoring their own work.

Furthermore, I argued that modern teachers also need *organising skills* to sort out materials and sources of information; *analysis skills* to enable them to break down complex bodies of knowledge into coherent components; *synthesis skills* so that ideas can be built into arguments, propositions and theories; *presentational skills* so as to clarify complex information without harming its integrity; *assessment skills* so that the work of pupils can be judged and appropriate feedback given; *management skills* so that dynamics of individual learners, groups and classes can be effectively co-ordinated; and, finally, I stressed that teachers needed *evaluative skills* so that teaching, itself, can be continually improved.

In creating such a long list of items concerning both knowledge and skills, however, I was conscious that I was still failing to do justice to the complexity of effective teaching. Effective teachers, in my judgement, bind together skills and knowledge through the use of their imagination, creativity and sensitivity in order to stimulate, support and encourage learning using such means as high expectations and modelling behaviour. We know that even this impressive battery of competences is not enough to guarantee *learning*. Determined pupils can, and do, resist. Somewhat frustratingly, we also know that effective learning can take place in the absence of effective teaching. However, optimum results occur when there is a good match of the two (Mortimore, forthcoming a).

How does the effective schools research contribute to this debate?

Most members of the Congress are likely to be familiar with the approaches used over the last 20 or so years to identify the characteristics of effective schools, and with the strengths and weaknesses of this paradigm. Those unfamiliar with this area may wish to consult Reynolds et al (1989); Creemers et al (1989); Bashi and Sass (1992) or any of the issues of the International Journal, for more detailed information.

The single most researched factor in the work of school effectiveness concerns the area of *variation* between schools. Studies of variation between schools exist in both simple and sophisticated forms. The simpler studies take little or no account of differences and the characteristics of students entering and attending schools. They also tend to focus on only one measure of outcome: that of scholastic achievement. The limitations of such an approach - as experienced teachers will know - is that schools do not receive a uniform intake of students: some take high proportions of advantaged young people, likely to do well in examinations; others receive high proportions of disadvantaged students who, all things considered, are less likely to do well. So to compare the results of achievement tests or examinations without taking into account these differences in the student intake, and to

attribute good results to the influence of the school, may be quite misleading. Accordingly, various definitions of effectiveness have been formulated. One simple definition that I have used is:

> one in which students progress further than might be expected from a consideration of intake (Mortimore, 1991, p 9)

It must be noted, however, that this definition does not assume that *all* students from disadvantaged backgrounds are likely to do badly in tests or examinations. Some such individual students will do very well; they will buck the trend. What the definition implies is that, all other things being equal, disadvantaged students as a group are less likely to do well than are those from advantaged backgrounds, in any kind of assessment which is competitive. Accordingly, measures of progress are needed which can take account of the students' initial starting points.

Various methods have been developed by researchers to deal with this problem. These range from simple standardisation, through multiple progression techniques to the latest multi-level modelling. Regardless of these specific technique used, however, most approaches have been based on a common model of school effectiveness. In such a model, outcome measures, suited to the type of school, are identified. At the elementary level this might include basic skills of literacy and numeracy. At the secondary school level, the outcomes are likely to be based on achievement but may also include measures of attitudes and behaviour. The second stage of this procedure is to relate these chosen outcomes to the available data on the student intake. Such characteristics can include earlier reading levels, former attendance or behaviour ratings and any available information on home background. Using the most sophisticated techniques available, researchers then attempt to take account of the intake in variation and to adjust the outcome measures accordingly to provide, what is increasingly known as, a *value added* component. In this way an attempt is made to see how the outcomes would look if all schools had received a similar intake. To use the research terminology: to compare like with like.

Finally, at the third stage, researchers have usually sought to relate the adjusted outcomes to whatever information has been collected about the life and functioning of the school - the school processes. Researchers call this technique *backward mapping* of outcomes to process measures (Murphy, 1991).

Methodological issues

Like many other research topics, studies of effects of schooling vary a great deal in the scope of their designs and their chosen methodologies. Some of the problems of earlier studies have been discussed by Rutter (1983) and by Purkey and Smith (1983). More recently, a number of articles in the International Journal of Educational Research addressed this topic (Scheerens and Creemers; Raudenbush and Bosker and Scheerens, all 1989) as does a series of papers in Reynolds and Cuttance (1992). The types of issues that have been raised include:

the need for clearer conceptualisation and theory

the use of more sophisticated statistical techniques

the inadequacy of current sampling methods

the choice of appropriate outcomes

the methods of relating outcome to process data.

On the whole, the later studies have used more sophisticated methods than have the earlier ones. The improvement in methodology, however, has not been matched by similar advances in the development of theory. The need for better theory has been recognised, however, and a number research teams are addressing this issue (Mortimore, 1991; Reynolds and Packer, 1992).

Contribution from research findings

School-effectiveness studies have generated considerable amounts of information about the management of learning and teaching. In the United States, for instance, early studies by Weber (1971), Brookover and Lezotte (1977) and Edmonds and Frederickson (1979), although focusing almost exclusively on academic attainment in the elementary schools, produced important findings. Since the publication of Weber's ground-breaking study, there has been a flood of critiques, replications and evaluations. A recent review and analysis of the field contains over 400 references (Levine and Lezotte, 1990). Whilst the synthesis carried out by the North West Regional Educational Laboratory (NREL, 1990) traced over 700 publications on this topic.

In the United Kingdom, Reynolds (1985) and Reynolds and Cuttance (op cit) have charted the field. Work on school effectiveness is no longer restricted to the UK and the US but, largely under the auspices of this International Congress, has spread to several different countries. The findings of many studies have focused on measures such as attendance, attitudes towards schooling, classroom behaviour and scholastic attainment. Although studies vary considerably in terms of their rigour, scope and methodologies, their findings have been fairly uniform: that individual schools can promote positive, or negative, student outcomes; that those outcomes can include both cognitive and social behaviours; and that they are *not* dependent on the school receiving a favoured student intake. The fact that the studies have taken place in different phases of students' schooling and in different parts of the world, adds strength to the interpretation that schools can make a difference to the lives of their students. Whilst, in some cases, the range of attainment outcomes that can be traced directly to the influence of the school might be relatively small, they can make the difference between academic success and failure, and so can have a long-term effect on students' life chances. What has also become apparent from these studies is that there are also likely to be differences in the average *progress* achieved by students from different schools, and that this variation is less susceptible to factors related to homebackground than are the more usual measures of attainment. Thus the findings have clarified, considerably, our understanding of the potency of schooling.

There are still, however, a number of outstanding issues concerning, for instance, the question of whether the positive effects of schooling vary according to time; whether they vary according to school memberships; and whether they vary according to the particular strengths and weaknesses of individual schools.

Such questions need answers and whilst - to a certain extent - these can be answered by meta-analysis and by interpretation of existing studies (Mortimore, forthcoming, b), they also need to be addressed in new or ongoing empirical work. New reports emerging from, for example, the work of the Louisiana Study (Teddlie et al, 1984; 1989); the new programme of research established by Creemers et al, (1992); and by new British studies on the variation within secondary schools to be carried out by Nuttall, Sammons, Thomas and myself or on School Development Planning being carried out by MacGilchrist, Savage, Beresford and myself - both at the Institute of Education - will all need to take forward our knowledge on these difficult issues.

What are the relevant mechanisms?

It is seldom possible for educational researchers to impose experimental conditions on their subjects. Whilst they are generally welcomed into schools and classes, they usually have to observe things as they are. This helps them to gain a realistic picture of school life but means that they are rarely able, directly, to trace *causal* relationships. All too frequently, researchers are limited to the tracing of patterns of association and the use of correlations.

Nevertheless, even with such methodological limitations, researchers from different countries have reached a number of conclusions about the variables commonly associated with the functioning of more effective schools. The plausibility of these variables operating as *mechanisms* of school effectiveness has been increased by the frequency with which they have been replicated.

The following list of eight mechanisms is not intended to be comprehensive or exhaustive. It has been culled from a sample of ten reviews or studies drawn from different countries and selected because of their use of different methodologies.

Because of different wording and a lack of scientifically precise language, it is not possible to compare - in a highly accurate way - findings from so many different studies, many of which are composite reviews of a number of individual research projects. It is possible, however, broadly to collate variables in order to ascertain the most common mechanisms found by researchers to be associated with effectiveness. The following list is the result of this exercise.

Strong positive leadership of schools

Although a few studies (notably, Van de Grift, 1990) claim that the principal has little impact or that the leadership of the school can be provided by somebody else, this mechanism was found almost universally to be important.

Different studies have drawn attention to different aspects of principals' roles but Levine and Lezotte (op cit) have provided a clear analysis of how strong leadership can provide mechanisms to aid effectiveness. In their view, this occurs through the rigorous selection and replacement of teachers; 'buffering' the school from unhelpful external agents; frequent personal monitoring of school achievements; high expenditure of time and energy for school improvement actions; supporting teachers; and acquiring extra resources for their schools.

The British studies support this analysis but another, rather subtle, task: that of understanding when - and when not -to involve other staff in decision-making. The British studies have found evidence that both autocratic and over-democratic styles of leadership are less effective than a balanced style which depends on the crucial judgement of when, and when not, to act as decision-maker. Fullan (1992) has argued that strong leadership, by itself, is not sufficient in a complex modern society. Instead, he argues that heads (principals) have to find appropriate leadership roles for teachers.

A new British Study (Mortimore et al, 1992) has investigated the effectiveness - and the cost-effectiveness - of different approaches to staffing. This research has revealed that Associate Staff (non-teaching colleagues) can undertake a variety of roles within the school which thus enable their teaching colleagues to focus more directly on pedagogical matters. The Study also revealed the number of 'grey areas' between the roles of teaching and associate staff but, overall, identified a number of benefits in an innovative approach to staffing issues. One of the key findings of the research, however, was that management of staffing matters by the headteachers (principals) needed to be handled most sensitively if the effectiveness of the school was to be enhanced.

High expectations: an appropriate challenge for students' thinking

As noted earlier, this mechanism has been commonly cited by researchers. Mortimore et al (op cit), for instance, looked at ways in which expectations could be transmitted in the classroom. The researchers found that teachers had lower expectations for students who, for instance, were young in their year group (those with summer birthdays) or who came from lower social classes. However, they found that low expectations, as such, were not held in any simple way for either girls or boys per se, despite the fact that boys received more critical comments and girls more praise. These data were difficult to interpret and the research team drew on the findings of Dweck and Repucchi (op cit) to help explain the data. (Dweck and Repucci found that greater praise from male teachers to female students for less adequate work was linked to stereotyped views of female performance.)

Monitoring student progress

Whilst recognising that monitoring, by itself, changes little, the majority of studies have found it to be a vital procedure, both as a prelude to planning instructional tactics, altering pedagogy or increasing/decreasing workloads. The researchers also saw it as a key message to students that the teacher was interested in their progress. Whether it is more effective for the monitoring to be carried out formally or informally cannot yet be answered and further work on the way this mechanism operates is essential in view of the increase in formal testing taking place in many school systems.

Student responsibilities and involvement in the life of the school

The mechanism - in its various forms - of ensuring that students adopt an active role in the life of the school has also commonly been found to be important. By seeking to involve students in school-oriented activities, or by allocating responsibilities so as so elicit a positive response from them, teachers have endeavoured to provide a sense of ownership in the school and in the students' own learning.

Whilst examples of talented, but alienated, students can frequently be found in literature, the general rule appears to be that learning is most likely when the students hold a positive view of the school and of their own role within it. The attitudes of students towards themselves as learners was used as a school outcome in Mortimore et al (op cit). The outcome consisted of a specially designed measure of self-concept. This was the mirror image of the behaviour scale completed by teachers but also completed by students themselves. The measure revealed clear school differences: some schools produced students who - regardless of their actual ability - felt reasonably positive about themselves; others produced students who were negative about themselves even when - in the judgement of the research team and according to their progress - they were performing well.

Rewards and incentives

Unlike punishments, rewards and incentives appear to act as mechanisms for enlisting positive behaviours and, in some cases, for changing students' (and at times teachers') behaviour. Thus, Purkey and Smith (op cit) note that a key cultural characteristic of effective schools is a

> "school-wide recognition of academic success: publicly honouring academic achievement and stressing its importance encourages students to adopt similar norms and values." (p 183)

Levine and Lezotte (op cit) make two further points. First, that the use of rewards extends beyond academic outcomes and applies to other aspects of school life - a point supported by the British research. Second, that school-wide recognition of positive performance may be more important in urban schools - and especially those in inner cities where, because of the correlation with disadvantage, there are low achieving students. Levine and Lezotte cite Hallinger and Murphy's (1987) study to support this argument. Hallinger and Murphy argue that one of the roles of principals in advantaged schools was to

> "sustain existing norms, rather than create new ones . . in low SES (disadvantaged) schools the principal must ensure that the school overcomes societal and school norms that communicate low expectations to the students . . . (whereas in higher SES schools) school disciplinary and academic reward systems need not focus as much on short-term accomplishments, rely heavily on tangible reinforcers or develop elaborate linkages between the classroom and the school." (p 3)

Finally, in one of the British studies, Mortimore et al (op cit) found that rewards could be given in a variety of ways, if the policy of the school was positive. In some schools, the policy was to reward individuals for good work or behaviour, whilst in others it was to focus on sport and social factors. Schools experienced the problem of trying to create a common system of incentives. This was a particular problem for schools where the age range was wide: rewards that appealed to younger pupils sometimes lost their enchantment for older students.

Parental involvement in the life of the school

Parental involvement is possibly one of the most important issues in the current educational debate. The idea is not new and has been pioneered by a number of educational researchers in Canada, the United Kingdom and in the United States. There is also a large and rapidly increasing literature on the topic. In the United Kingdom, much of the debate has been about the gains to be made from developing contact between homes and schools with regard to children's learning, as well as about ways to increase the accountability of schools to parents.

The vital role that parents can play in the intellectual development of their children has long been known, but experiments to use this resource more effectively have met with varied success. One pioneering British study (Tizard et al, 1982), however, demonstrated that parental involvement in reading more than compensated for the use of an extra teacher in schools.

Evidence from the head-start programmes in the United States (Lazar and Darlington, 1982) has also provided evidence that the involvement of parents was an important aspect of the programmes' success, and that from England shows that the gap between the achievement levels of advantaged and disadvantaged can be reduced (Athey, op cit). In another British study, Mortimore et al (op cit) found that schools varied a great deal in their attitudes towards parents. Some schools kept parents out; other used parents as cheap labour. A few schools involved parents in the school planning and sought to use their talents and abilities in both the classroom and at home. The researchers found, however, that some principals appeared to be insufficiently confident in their relationships with parents, especially in more socially advantaged areas. They found, though, that when the energy and talents of parents were harnessed, the rewards for the school were high. Interestingly, they also found that Parent-Teacher Associations were not necessarily positive, in that particular groups of parents could form a 'clique' and thus present a barrier to the involvement of others. The range of parental involvement programmes in both elementary and secondary schooling in the United Kingdom has been summarised by Jowett et al (1991).

The ways in which parents act as a mechanism for effectiveness are not, however, well understood. It is possible to speculate that where both long-term goals and short-term objectives are shared by teachers and parents; where parents are able to offer considerable help through coaching; and where ideas generated in one area of a childs' life can be rehearsed and expanded in another, learning will be helped. Interestingly, Stevenson and Shin-Ying's (1990) study of three cities; Taipei (Taiwan), Sendai (Japan) and Minneapolis (US), illustrates the length to which oriental families will go to involve not just parents, but other relations, in the coaching of children. Stevenson shows that a belief in the supremacy of hard work over natural ability and the willingness to be critical, when combined with high

expectations, can provide powerful support for learning. Parental involvement, however, is not without difficulties and those responsible for school programmes need to have clear policies in place *before* embarking on this potentially valuable strategy (Mortimore and Mortimore, 1984).

The use of joint planning and consistent approaches towards students

This mechanism has been clearly recognised by many research studies. Levine and Lezotte (op cit) argue

> "almost by definition, faculty members committed to a school-wide mission focusing on academic improvement for all students tend to exemplify greater cohesiveness and consensus regarding central organisational goals than do faculty at less effective schools." (p 12)

Levine and Lezotte argue that cohesion and consensus are especially important to schools (rather than other institutions) because schools set teachers a number of difficult and sometimes conflicting goals. Thus, teachers have to respond to the individual needs of students whilst emphasizing the requirements of the whole class. They have to be fair to the group whilst taking account of individual circumstances. These conflicts are sometimes difficult for teachers to resolve to their own - and to their students' - satisfaction. In such circumstances it is easy for what Levine and Lezotte call "goal clarity" to be reduced and for improvement efforts to be fragmented. Where students are subject to conflicting expectations and demands and, as a result, become less confident, they often take time to learn the ways of each new teacher. Whilst this exercise may provide a helpful pointer to the ways of adults, it is clearly not a useful mechanism for a school.

The involvement of faculty members in joint decisions, of course, relates to the strength of leadership of the institution. There is clear evidence that when teachers and others in authority (including the assistant principal) are given a role to play, they - in the best management traditions - will be far more likely 'to feel ownership' of the institution and, as a result, offer greater commitment to it.

Academic press and the emphasis on learning

There has been much research on this mechanism. Some of it has been absorbed with the question of time-on-task (see, for instance, Sizemore, 1987). A number of research studies have also drawn attention to the amount of time wasted within the school day, particularly at the start of classes, through poor administration and lack of preparation (Blum, 1984). Rutter et al (1979) also found evidence of time wasted at the end of classes. The researchers described the chaotic situation that could develop where a high proportion of classes in the school finished before the scheduled time. The mechanism, therefore, is not simply about time: it is also about the use of time. Mortimore et al (op cit) noted that, whilst some of the schools in their sample programmed extra time (some 20 minutes per day) for classes, a straightforward correlation with effectiveness was not found. The value of time appeared to depend greatly on how it was used.

Having an emphasis on the learning of core skills has also been cited as an important aspect of this mechanism. In the United States, this has sometimes been associated with experiments in mastery learning (Gregory and Mueller, 1980). Levine and Lezotte (op cit), however, argue that, in some cases, the original concept of Bloom-type mastery learning has been misimplemented and cannot fairly be judged in these circumstances. In Britain a recent DES discussion paper (Alexander et al, 1992) has drawn attention to the danger that elementary schools can lose sight of the central focus on student learning and dissipate the energies of teachers in an unproductive way.

These are the eight most commonly cited mechanisms arising from the research literature. As noted earlier, however, other factors have frequently been studied and may also be of considerable importance for particular schools at particular times. Thus, if schools receive students of a certain background, if the community is subject to particular experiences, or if the school authorities invoke a specific series of reforms, other mechanisms for coping with change will come into play. Whilst these should never supplant the prime focus of school - the learning of pupils - they may act as mediating influences and, as a result, distract the attention of teachers and principals.

What are the lessons for school improvers?

There are a number of lessons concerned with effective learning and teaching that can be drawn from the corpus of school effectiveness work. Many of these have been discussed elsewhere (Fullan, 1991; Fullan, 1992; Reynolds and Packer, 1992; Stoll's 1992). I just wish to note three important issues.

Need for Planning

Studies of school effectiveness have shown that the effective management of learning and teaching relies upon systematic planning both at the school and the classroom level. Hargreaves and Hopkins (1991) have drawn together the lessons from a Government-funded project on School Development Planning. The researchers found that effective planning was a continuous *process* rather than a one-off activity. They also drew attention to the difference between *maintaining* the state of the school and *developing* it in a new direction.

Our own work at the Institute of Education on School Development Planning is still in its early stages. We are investigating - in a sample of contrasting schools - the forms which planning takes and, most importantly, the impact that it has on the effective learning of pupils. This is unlikely to be an easy task, but is an extremely important one (Beresford et al, 1992; Mortimore et al, forthcoming).

A focus on ends not means

A critical feature of the school effectiveness model is its focus on student outcomes. Whilst high levels of attendance, good behaviour, good levels of self-efficacy and positive attitudes to schooling, can be seen as means towards the end of effective learning (shown by a high level of progress), they can also be seen - to a certain extent - as legitimate ends which result in the development of positive, well-adjusted and self-disciplined, young learners. There is

thus no potential conflict between the energy and resources devoted to means and ends.

There might well be a difference between those related outcomes and a number of the other school processes which are perfectly legitimate as means towards the end of effective learning, but which, divorced from such an end, might not represent such sensible effort. The key lessons from school-effectiveness research is that the ends must constantly be kept in sight in order to prevent any of the means from assuming importance *in their own right* and, thereby, distracting energy from the main task.

Means towards worthwhile ends

At the school level it is possible to distinguish the following means

- leadership which provides clear aims and commitment within a positive ethos
- management which is efficient and skilful and which uses resources efficiently
- machinery for policy formulation which involves staff and - where appropriate - the community, parents and students in developing strategies appropriate to the aims of the school
- an environment which is both intellectually stimulating and safe
- a school-wide curriculum and assessment process
- staffing policies which are cost-effective and which draw fully on the potential of individuals
- adequate levels of resources, including books, learning materials and information technology equipment
- the capacity to cope with, and benefit from, change.

The means which appear appropriate at the classroom level are

- expectations which are pitched high and are sustained over time
- classroom management which is systematic and fair and which stresses rewards rather than punishment
- well prepared teaching
- detailed and positive feedback
- support for students who need supplementary help

- o an appropriate and balanced curriculum
- o flexible ways of working which relate well to school-wide aims and initiatives.

Conclusion

As noted, the factors listed here are simply means towards the end of effective learning. None, by themselves, are likely to guarantee successful outcomes. Taken together, however. they represent the state of our current knowledge and understanding of how effective schools function. Future schools may be different, and it is important that the characteristics of today's schools are not allowed to become reified and maintained beyond their proper usefulness. Tomorrows' schools may need to be very different if, for instance, a recent Report from the OECD (1992) is to be believed. According to this, the availability of cheap and highly capable information technology will lead to:

- o a move away from class-based teaching towards individual learning
- o the exploitation of 'smart card' monitoring and record keeping capabilities
- o increased contact between learners (and teachers) and other institutions and from outside of any formal bodies
- o the erosion of the school as a geographical entity.

The implications of such changes for all involved in managing, and teaching in. schools will be considerable. So also would be the scope for new ways of working. Will the next generation of school-effectiveness researchers and school improvers be able to cope?

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