



REVIEW

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*Evidence for Policy and Practice
Information and Co-ordinating Centre*

**Support for pupils with
emotional and behavioural
difficulties (EBD) in
mainstream primary school
classrooms:
a systematic review of the
effectiveness of interventions**

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The developmental nature of this project and resource limitations means that it has taken longer than expected to publish the report of this review on REEL. We have recently completed a complementary review on the same topic in the context of initial teacher education covering research published between 1999 and 2002. This will also be published on REEL (Harden *et al.*, 2003).

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SUMMARY

Background

Supporting children who might be deemed to have ‘emotional or behavioural difficulties’ (EBD) or ‘social, emotional and behavioural difficulties’ (SEBD) within mainstream classrooms raises interesting issues for the intersection of behaviour management policies, inclusive schooling and the drive for raising academic standards. The term EBD is a broad label which has been used to group a range of more specific difficulties, such as behaviour which interferes with a child’s own learning or the learning of their peers; signs of emotional turbulence (e.g. unusual tearfulness, withdrawal from social situations); and difficulties in forming and maintaining relationships. Definitions of EBD are contested and there is a need to consider the role that societal, family and school environments plays in creating and ameliorating children’s social, emotional and behavioural problems.

Many different strategies for teachers to support children have been advocated. A variety of groups are likely to have an interest in which of these strategies are effective, for whom, and in which circumstances: school staff (e.g. teachers, special educational needs co-ordinators), parents, and children themselves. This document reports on a systematic review of research to assess what is known about the effectiveness of different strategies relevant to supporting children with EBD in mainstream primary classrooms to facilitate teaching and learning for all children. The review and choice of topic grew out of a series of workshops and seminars held at the National Foundation of Educational Research (NFER) in England in 1999 to explore methods for systematic reviews of educational research. It was carried out as a collaborative effort between the NFER and the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) at the Social Science Research Unit, Institute of Education, University of London.

Review question and scope

This review aimed to summarise existing research findings to answer the following question to inform policy and practice:

What are effective strategies to support primary-aged pupils with emotional and behavioural difficulties in mainstream classrooms?

The intended population focus of our review was primary-aged children and the setting focus was classrooms within mainstream, rather than special, schools. However, our focus was not on special classrooms (e.g. resource rooms) within mainstream schools. The population scope of our review covered children whose behaviours or emotional difficulties were not so extreme that they could not be taught in mainstream classrooms, but were sufficiently frequent to require specific interventions from teachers or other adults so that they could remain in the mainstream classroom.

We were interested in strategies that could be implemented by primary school teachers either working on their own or in collaboration with other school staff to support children to remain in mainstream classrooms. Our review was not concerned with strategies using drug or psychiatric treatments, but with strategies which provide children with information, social support, or skills training. Our intended intervention scope also covered strategies which involved making changes at the whole class level (rather than individuals within classes) and to the physical or social organisation of the classroom.

Our review was concerned with studies evaluating the outcomes for children of the above types of strategies (outcome evaluations).

Methods

An advisory group of 13 members was formed, including researchers, academics and practitioners with an interest in EBD and academics with experience in conducting systematic reviews of social interventions. Potential users of the review are primary classroom teachers, Special Educational Needs Co-ordinators (SENCOs), heads and deputies, advisers and educational psychologists, parents and school governors, school students with and without EBD, policy-makers and researchers. Not all of these users were represented on our advisory group. In particular, teachers, parents and children themselves were not represented. This is a limitation of the review.

We searched for outcome evaluations through six bibliographic databases using a wide range of terms for 'emotional and behavioural difficulties' combined with terms for 'classroom strategies'. These searches were supplemented by handsearches of 27 journals, scanning the reference lists of already identified relevant studies and through requests for papers to researchers and experts in the field of EBD. We excluded studies which evaluated strategies for general discipline problems; involved children in mainstream schools who were taught entirely in special classes (e.g. resource rooms); did not report the full results of an evaluation; or did not report on outcomes for children. We also excluded studies not published in the English language.

A standardised set of data-extraction guidelines was applied to the outcome evaluations meeting the criteria set out above. These guidelines coded studies according to the type of classroom strategies they evaluated and the characteristics of children studied. The guidelines also enabled reviewers to record in detail the methodological attributes of the studies and their findings. Methodological quality was determined by using previously developed criteria to assess to what extent studies had reduced the possibility of bias in their findings. Two reviewers undertook these stages of the review independently and any disagreements were resolved through discussion. Findings of studies were synthesised according to the theoretical framework which underpinned the strategies evaluated and the types of behaviours associated with EBD which they aimed to address.

Results

The search strategies yielded a total of 265 citations and full reports were obtained and processed for all of them. A total of 96 reports were identified to be within the scope of the review. Only 48 of these described primary research, of which 27 reported in full outcome evaluations of the effects of strategies for supporting primary aged pupils with EBD in mainstream classrooms. One of the 27 described two outcome evaluations and therefore the total number of outcome evaluations identified was 28. There appears to be only a small amount of primary research activity that describes itself as evaluating the effectiveness of strategies for supporting children with EBD in mainstream primary classrooms.

Description of research activity in this area

Very few of the studies we identified were carried out in the UK (n=4). Most of the studies evaluated strategies in the US (n=18). A handful of studies were conducted in other European countries, Australia or Canada (n=6).

Types of strategies and behaviours targeted

The kinds of strategies that have been evaluated by the studies we identified for inclusion in this review were underpinned by three main underlying groups of theoretical models. These are **behavioural** models, based on learning theory, which suggests that there is a linear relationship between behaviour and its outcomes for an individual; **cognitive behavioural** models, which are an elaboration of learning theory to take account of the capacity of individuals to understand and reflect on their behaviour; and **systemic** models which take account of the organisational context within which inappropriate behaviour occurs and attempt to change behaviour by modifying the context. The majority of the outcome evaluations we identified evaluated strategies based on behavioural or cognitive behavioural strategies (n=11 and n=14 respectively). Few evaluated strategies based on systemic models (n=4).

These strategies were used to target four main groups of behaviour associated with EBD. The majority of studies evaluated strategies targeted towards either off-task behaviour or disruptive behaviour. The types of **off-task behaviour** targeted included behaviours such as not engaging in the work set by the teacher, fiddling with pencils and other equipment, or wandering round the classroom. The types of **disruptive behaviour** targeted included calling out in class, interfering with others' possessions, or talking to others and disturbing their work. All three types of strategies outlined above have been evaluated for their success in targeting these behaviours. Fewer studies evaluated strategies focused on aggressive behaviour or socially inadequate behaviour. **Aggressive behaviour** was characterised as including behaviours such as arguing, fighting, or name-calling. **Social difficulties** were characterised as including inappropriate attempts to engage with peers, refusal to engage with peers or adults. Our included studies only evaluated strategies based on cognitive-behavioural and systemic models to target these behaviours.

We found no completed studies which had evaluated strategies based on a **psychotherapeutic** model. These are based on theories of parent-child relationships. Strategies based on this approach, such as 'nurture groups', are increasingly being used in primary schools. Properly designed evaluations of this

approach would provide information for schools, parents and children on whether or not they are effective.

Although the majority of our included studies evaluated strategies implemented by teachers, these sometimes involved assistance from other providers such as peers, parents or psychologists. This raises interesting questions about the level of additional support teachers might need to assist pupils with EBD. The length of time teachers had to spend implementing strategies also varied, raising questions about how much time teachers have to spend to achieve success.

There was little evidence within the studies identified for this review of a shift away from seeing emotional and behavioural difficulties as problems located *within* individuals (the so-called 'medical model' of EBD) towards a more context-based approach, where behaviour is seen as a response to particular situations. There was also little sign within our studies of a greater focus on social justice and equal opportunities in framing the context within which support for pupils is offered. Indeed most studies were not framed in the context of supporting children at all, but were framed in terms of trying to reduce social or behavioural 'deficiencies'. Moreover, none of the studies consulted with children with or without the label EBD for their views on possible intervention strategies.

Types and quality of studies employed to evaluate strategies

A variety of research designs have been employed by researchers to evaluate strategies. Trials appeared to be the least popular design employed by the studies we identified. Just under one-third of the studies (n=9) employed a control or comparison group as part of their evaluation design. Six of these used random allocation of children or groups of children to either receive the strategy or to a control or comparison groups, whereby the likelihood of each child or group of children receiving the strategy was determined purely by chance. More popular were 'one group' designs (n=19) in which the intervention was evaluated solely with the group of children receiving it. Eight of these used a reversal design, which involves one child or several children for whom outcomes are measured during a baseline period, an intervention period, and then a period when the intervention is withdrawn. These latter designs are best suited to examine immediate rather than long-term effects of interventions.

The size of the samples which were used in the studies is of particular concern. Nearly half of the outcome evaluations used a sample size of less than 10 children. Only four studies had sample sizes of more than 100.

We assessed all studies according to the extent to which their design and implementation could reduce bias and therefore increase our confidence that findings about the success or failure of strategies were accurate. We assessed studies according to the following sources of bias: **selection bias** in which experimental and control groups in a trial are not equivalent or, in a reversal design, if scores do not revert towards baseline when the reversal takes place; **bias due to loss to follow-up** where some children are lost to the study due to attrition; and **selective reporting bias** in which data on *all* outcome measures, as defined at the start of the study, are not reported.

Using these criteria, 10 of the included studies were judged to have low risk of these sources of bias and thus were deemed to be methodologically 'sound'. Therefore more reliance can be placed on findings from these studies, than on the findings from the other 18, which were not judged to be sound.

Which strategies are effective for supporting primary aged children with EBD in mainstream classrooms?

The following summarises what is currently known and not known from the studies we identified and included in this systematic review about the effectiveness of strategies for supporting primary-aged children with EBD in mainstream classrooms.

Strategies based on behavioural models

Four sound studies evaluated this type of strategy. Two were judged by reviewers to demonstrate positive effects. These were implemented with whole classes of children aged between seven- and 10-years old in the US and appear to be relatively simple for teachers to implement. Common to all was the provision of rewards such as minutes of free-time for play (sometimes with chosen peers) or listening to music for on-task and non-disruptive behaviour, and loss of rewards for off-task and disruptive behaviour. Teachers used visual aids such as graphs or symbols (e.g. smiley faces, red ribbons) to show children how well they were progressing towards receiving a reward. Reductions in off-task and disruptive behaviour amongst pupils with EBD were immediate and restricted to the period that the strategy was in place. Because of the whole class nature of these interventions, an element of peer support and pressure appears to be important for the success of these strategies.

Amongst the studies included in our review, other types of behavioural strategies have not yet been sufficiently evaluated. These were assertive discipline which comprised a package involving classroom rules posted for the whole class, reviewing these rules each day and the consequences of breaking them, and rewards for good behaviour; daily report cards sent to parents who are then responsible for determining rewards and sanctions; and training of teachers to increase the amount of praise they give to children.

Strategies based on cognitive behavioural models for disruptive or off-task behaviour

Strategies based on this model strive for longer-term changes and tend to require more intensive or longer intervention periods. Evidence for the effectiveness of this type of strategy for reducing off-task or disruptive behaviour was limited to one study in this review. This study showed that an eight-hour programme teaching children a self-instruction technique to monitor their own behaviour was effective amongst seven- to nine-year-olds in the US. This programme, taught by a researcher outside of the classroom, involved adult and peer modelling of the self-instruction; practising self-instruction and cueing to remind the children what they had been taught.

Based on the studies included in our review, other types of cognitive-behavioural strategies delivered by regular classroom teachers require further rigorous evaluation. These were a technique called 'responsive instruction' in which teachers are trained to engage children who demonstrate a lack of initiative in learning and playing through taking the child's perspective and challenging the child to take an active role; and a strategy which involved children learning how to recognise bad behaviour and the consequences of it. A further study highlighted the need for more work on whether complex packages involving several different strategies are more successful (e.g. peer tutoring combined with

social skills training, home-school communication systems and rewards and sanctions).

Strategies based on cognitive behavioural models for reducing aggression or improving social skills

The four sound studies which evaluated this type of strategy aimed to reduce what is defined as the root cause of aggressive or socially inappropriate behaviour: feelings of anger or poorly developed social skills. One study evaluated a strategy involving a ten-session counselling programme for aggressive nine- to 12-year-old boys and girls in the US in which a trained counsellor helped children deal with their feelings of anger and frustration. Another study evaluated a similar counselling programme for boys aged 11 years (also in the US), but this also contained a teacher-training element to develop an awareness of the issues these children were facing. A third study evaluated a strategy consisting of a 20-week social skills training programme for eight- and nine-year-old children in Australia. The fourth study evaluated a strategy named 'role-reversal' in which seven year old aggressive boys in the US were trained to monitor others disruptive behaviour. All four studies showed positive effects of these strategies immediately after the intervention but none showed long-term effects.

Due to the small number of sound studies, it is not possible at the present time to build up a detailed picture of the essential components of cognitive-behavioural strategies for supporting children with EBD in mainstream classrooms. Different types of cognitive-behavioural strategies were evaluated in the studies included in this review (e.g. training in conflict resolution; teaching children to value each other and raise each other's self-esteem), but they require more rigorous evaluation.

Strategies based on systemic models

This review found evidence from only one sound study about the effectiveness of these types of systemic strategies. This study was carried out in the UK and demonstrated that changing the seating arrangements in classes from groups to rows had a positive impact on time on task, particularly for the most distractible pupils.

'Circle time' is another strategy based on a systemic model, which is widely used in schools for dealing with whole-class issues, including problem behaviour. No sound studies of 'circle time' were found, although one study was included in the review. Properly designed evaluations of this approach would provide information for schools, parents and children on whether or not they are effective.

Factors which may relate to successful implementation

Seven studies included a process evaluation which examined factors relating to the implementation and acceptability of strategies. Views were sought from children, teachers or other providers on their experiences of the strategies. For teachers, the simplicity and acceptability of a particular strategy; consistent implementation by teams of teachers across the school; and avoidance of implementing strategies in 'top-down' fashion were important for a strategy's successful implementation. Children's views on interventions indicated that consulting and listening to children were important for ensuring the acceptability

of a particular strategy and in highlighting the differences between their definitions of a successful strategy compared with teachers or researchers.

Implications

Based on the studies included in this review, the evidence-base for recommending effective strategies that teachers could draw on to support pupils with emotional and behavioural difficulties in mainstream classrooms is limited. However, because of the definitional problems associated with EBD, it is likely that our search strategies missed studies which would have met the inclusion criteria for this review. Our searches were designed to identify literature described as being focused on EBD rather than the overlapping literatures on aggression, conduct disorder or violence prevention. The studies in this review therefore represent a particular slice of all potentially relevant literature and our conclusions must be interpreted within this context. In addition, there was a bias towards finding studies in educational and psychological journals in our search strategy, and this may have limited the range of theoretical models underpinning the strategies evaluated by the included studies.

Within the context of the above limitations, the following strategies have been shown to be effective by at least one sound study included in this review:

- **Behavioural strategies using token systems for delivering rewards and sanctions to either the whole class or individuals within a whole class are effective for reducing behaviour which is disruptive to children's own or others' learning in the mainstream classroom. Positive effects are immediate and restricted to the period of intervention delivery. Such strategies should attempt to incorporate some element of peer support and pressure.** Based on two sound studies with boys and girls aged seven to ten years in the US identified as disruptive or having emotional and behavioural difficulties.
- **A relatively short cognitive behavioural programme, delivered outside of the classroom by a researcher to train children in self-instruction, can reduce behaviour which is disruptive to their own or others' learning when they return to the mainstream classroom. These reductions can be sustained over time.** Based on one sound study conducted in the US with a sample of 55 boys and girls aged seven to nine exhibiting off-task behaviour.
- **Multi-session interventions delivered by specialised personnel to help children cope with anger can produce short-term reductions in aggressive behaviour.** Based on two sound studies conducted in the US with aggressive boys and girls aged between nine and 12.
- **A multi-session social skills programme delivered by regular classroom teachers can produce short-term positive effects on social skills, but such effects have not been shown to be maintained in the long term. It has not been demonstrated that this type of intervention can show any reduction in the incidence of childhood emotional problems.** Based on one sound study conducted in Australia with boys and girls aged nine to 12 years.

- **Changes in the seating arrangements in classrooms from groups to rows has an impact on time on task, and this impact is most marked for the most easily distracted pupils.** Based on evidence from one sound study carried out in the UK with boys and girls aged seven to eight.

The gaps in the evidence-base we uncovered are important as they can provide a focus for more strategic commissioning of future primary research. Bearing in mind that we are likely to have missed some studies from the literatures on aggression, conduct disorder and violence prevention, it is recommended that the following strategies need further evaluation:

- **variations in strategies based on a behavioural model (e.g. assertive discipline, the use of daily report cards or training teachers to use praise);**
- **variations in strategies based on a cognitive behavioural model (e.g. responsive instruction, packages of behaviour management programmes or teaching children how to recognise ‘bad’ behaviour and the consequences of it);**
- **strategies based on a systemic model, for example, ‘circle time’;**
- **strategies based on a psycho-therapeutic model, for example, ‘nurture groups’.**

It is also unclear whether some strategies are more effective than others or whether strategies delivered by teachers are more effective than those delivered by other professionals. In particular, more work is needed to examine:

- **whether strategies delivered solely by classroom teachers (either to the whole class or individuals within a whole class) are more or less effective than those delivered with the support of other professionals;**
- **whether cognitive behavioural strategies are superior to behavioural strategies or vice versa for reducing off-task or disruptive behaviour.**

Given this lack of clarity about the effectiveness of a number of widely-used strategies:

- **We recommend that practitioners and researchers work in partnership to carry out rigorous studies of the strategies currently used. Such partnerships need to actively include children and their parents.**

A number of recommendations can also be made about how research on the above issues should be carried out.

Some of the studies we reviewed did not use a research design that was appropriate to the outcomes that were expected from the intervention.

- **We recommend that reversal designs are only used to evaluate interventions which are expected to produce change when an intervention is in place (e.g. those based on a behavioural model).**

For interventions which are seeking changes to be maintained when an intervention has stopped, **we recommend that study designs involve:**

- **more than one group so that one group receiving the intervention under evaluation can be compared to a group not receiving the intervention;**
- **random allocation of children or classes or schools to intervention and non-intervention groups;**
- **careful attention, when random allocation is not possible, to obtaining groups that are matched on socio-demographic characteristics and levels of emotional and behavioural problems;**
- **more effort to obtain measures of outcome over the long term, potentially into adolescence and even adulthood, when appropriate. This will depend on the aims of the intervention.**

For the evaluation of any type of strategy we recommend that:

- **More attention is paid to using sample sizes large enough to ensure that studies have are adequately powered to detect the effects of classroom strategies.**

More attention needs to be paid to researching reasons why strategies work (or do not work).

- **We recommend that process evaluations be undertaken to ascertain the views of participants (teachers, children and parents) about the strategies used.**

Consideration should also be given to ethical issues in conducting research 'with' rather than 'on' children.

We recommend the following:

- **Children should be respected and valued in the same way as any other social group participating in research.** Their views and experiences should be considered as a valuable resource for the development of interventions.
- **Children, parents and other stakeholders should be involved in planning the evaluation of interventions.** Their views will be valuable in determining relevant and appropriate data-collection methods, tools and topics, and in determining outcomes to be measured.

It is impossible to assess the reliability of the results of evaluation studies unless there is a clear description of the methods used for the evaluation.

- **We recommend that full details of research methodology be given in research reports. Publications should also make this information available, either in the published paper, or as a technical appendix available from the authors.**

1. BACKGROUND

1.1 Aims and rationale of the review

Supporting children who might be deemed to have ‘emotional or behavioural difficulties’ (EBD) or ‘social, emotional and behavioural difficulties’ (SEBD) within mainstream classrooms raises interesting issues for the intersection of behaviour management policies, inclusive schooling and the drive for raising academic standards. Many different strategies for teachers to support children have been advocated. A variety of groups are likely to have an interest in which of these strategies are effective, for whom, and in which circumstances: school staff (e.g. teachers, special educational needs co-ordinators), parents, and children themselves. This document reports on a systematic review of research to assess what is known about the effectiveness of different strategies relevant to supporting children with emotional and behavioural difficulties in mainstream classrooms within primary schools.

1.2 Defining emotional and behavioural difficulties

The term EBD is used to refer to a range of difficulties and has been defined as:

Emotional and behavioural difficulties range from social maladaptation to abnormal emotional stresses. They are persistent (if not necessarily permanent) and constitute learning difficulties. They may be multiple and may manifest themselves in many different forms and severities. They may become apparent through withdrawn, passive, aggressive or self-injurious tendencies (DfEE 1994: 7).

However, there is a lack of clarity about which particular groups of children and which behaviours constitute EBD and where ‘behaviour problems’ and the strategies to contain them shade off into those concerned with more general discipline problems. At the other extreme, there is lack of clarity as to whether behaviour difficulties in school indicate some underlying mental health problems that need medical or psychiatric intervention. In general, there is a distinction made between emotional and behavioural difficulties and more deep-seated mental health problems, which require psychiatric interventions (Atkinson and Hornby, 2002). However, in recent guidance, the Government has acknowledged that there is some overlap between the group of children with EBD and those who have mental health problems (DfES, 2001). The Code of Practice for the identification and assessment of special educational needs suggests that EBD may become apparent in the following ways (DfEE, 1994):

- age-inappropriate behaviour or that which seems otherwise socially inappropriate or strange;
- behaviour which interferes with the learning of the pupil or their peers (e.g. persistent calling out in class, refusal to work, persistent annoyance of peers);

- signs of emotional turbulence (e.g. unusual tearfulness, withdrawal from social situations);
- difficulties in forming and maintaining positive relationships (e.g. isolation from peers, aggressiveness to peers and adults).

Definitions of EBD are contested. Some educationalists have highlighted how behavioural problems may be the result of a clash between the values and expectations of school systems and the values that children acquire in their homes and community. Boys and children from ethnic minority groups are more likely to be given the label of EBD (Daniels *et al.*, 1999). Historically, there has been a shift away from seeing emotional and behavioural difficulties as problems located *within* individuals (the so-called 'medical model' of EBD) towards a more context-based approach, where behaviour is seen as a response to particular situations (Cooper *et al.*, 1994). Thus, it is argued, the ways in which schools and classrooms are organised will have a significant impact on EBD. There is therefore a need to acknowledge the complex relationship between the societal, family and school environments and the part that each of these contexts plays in creating and ameliorating children's social, emotional and behavioural problems (Weare, 2000).

This review acknowledges the importance of these debates around EBD. Whilst our review is informed by the definition of EBD described above, it was also influenced by a more context-based approach to EBD, where behaviour problems and emotional difficulties are seen as a response to particular situations and thus the ways in which schools and classrooms are organised can have a significant impact on EBD.

1.3 Policy and practice background

In recent years in England and Wales, the emphasis of government policy has been on the inclusion of children with special educational needs (SEN) in mainstream classrooms (DfEE, 1997) and the reduction in the numbers of children excluded from school for disciplinary reasons. Both of these groups will include children with EBD. Thus, there has been pressure both on schools and local education authorities (LEAs) to find new ways of enabling teachers to support children with EBD in order that they can be included in the ordinary classroom with their peers. LEAs have been required to draw up Behaviour Support Plans, which give details of the ways in which they will 'provide advice and resources to relevant schools for promoting good behaviour and discipline, and dealing with pupils with behaviour problems' (DfEE 1998: 4).

Current policy therefore goes against a long history of excluding from mainstream schools children deemed to have difficulties. Richardson (1994), when discussing the setting up of the 'common school' in the United States in the nineteenth and early twentieth centuries, describes how institutions for children considered as unable to be 'contained' in local schools were developed simultaneously with ordinary elementary schools. In England and Wales, as well as providing segregated schools and units for students with emotional and behavioural difficulties, there has been a long tradition of excluding some disruptive children from school, which is not matched by the ways in which such students are dealt with in many other European countries (Parsons, 2001).

The lack of clarity about which children have emotional and behavioural difficulties and the emphasis on the inclusion, as far as possible, of all children

within mainstream schools, has led to stresses and dilemmas for classroom teachers. Daniels *et al.* (1999) reported that teachers in the schools in which they researched could not provide a clear definition, but implicitly had a concept of EBD similar to that articulated in Circular 9/94 (DfEE, 1994). There is some evidence (for example, Evans and Lunt, 2002) that pupils with EBD are among the groups of children which teachers and other professionals working in schools and LEAs find most difficult to include. The number of pupils excluded from primary and secondary schools has risen by 11 percent between 1999/2000 and 2000/2001. This reversed a downward trend from 1997 and was particularly acute in primary schools, where exclusions rose by 19 percent over the time period. The rise coincided with a relaxation of the rules governing exclusions, making it easier for heads to exclude unruly pupils (Parsons, 2001). A report by Ofsted on Pupil Referral Units (PRUs) for excluded pupils found that a significant proportion of the students in PRUs had statements of special educational needs on account of their emotional and behavioural difficulties (Ofsted, 1999).

There have been many attempts to provide advice and strategies to support teachers to maintain disruptive children, including those with EBD, in their classes (Chazan, 1993; Cooper, 1989; Kolvin *et al.*, 1976; Laslett, 1982; Whedall and Panagopoulou-Stamatelatos, 1985). These strategies are located within a range of psychological and pedagogic paradigms. Some have advocated behavioural approaches using rewards and sanctions to promote acceptable behaviour. Others have suggested that psychotherapeutic approaches focusing on early childhood experiences are more effective. There have been a number of studies which stress the importance of systemic or 'whole school' approaches to behaviour management. More recently, there has been an emphasis on systemic approaches which acknowledge the role of the wider environment in creating and ameliorating children's social, emotional and behavioural problems. The fact that gender and ethnicity have been found to be key factors in the identification of certain groups of children as having EBD has led to a greater focus on social justice and equal opportunities in framing the context within which support for pupils is offered (Daniels *et al.*, 1998). Bowers (1996) has argued that the emphasis in most approaches to children with such difficulties is on the disruptive behaviour and not on the underlying emotional problems of children.

1.4 Research background

With a wide range of approaches advocated in the literature, questions arise as to which strategies primary school teachers might use to support children with EBD, whose behaviour might affect their own learning and that of their fellow students, to remain in mainstream classrooms. Much of what teachers do in the classroom is based on their 'craft knowledge', of what works for them. But, as Cooper *et al.* (1994) acknowledge, this can be augmented and strengthened by reflection and by theory. It can also be augmented by access to good quality research findings about which strategies appear to be effective.

Reviews can provide a short-cut to such research findings. *Systematic* reviews are pieces of research and employ a set of explicit methods in order to maximise the production of valid and reliable findings. Bias may be introduced into a review as a result of the decisions which are made during the course of conducting it. Therefore, systematic reviews use established methods for minimising bias at each stage of the review process.

To begin with, it is necessary to define an explicit review question. The question ‘drives’ the decisions which are made later in the review, so systematic reviews often have comparatively long and detailed titles. The review question leads to a set of criteria which define the type and scope of research which will be included. Each piece of research which is identified as having the potential to answer the review question is checked against these criteria. The review question and inclusion criteria help the reviewers to develop their *search strategy*. Since there is a clear danger that the review’s conclusions will be biased if relevant research is missing, a systematic review aims to bring together the results of all relevant studies (Egger *et al.*, 2001; Mulrow and Cook, 1998). Details of the search strategy are crucial aspects of the methodology section of the report, indicating the rigour of the search and thus the credibility of the review’s conclusions. Differences between the conclusions drawn by two reviews in the same area may be explained by differences in their search strategies and hence the pool of studies upon which the reviews draw. A systematic review of the literature must be conducted to an explicit and reproducible methodology, ideally locating both published and unpublished material.

After the relevant research has been identified, it is coded independently by more than one reviewer using standardised coding strategies. Again, this helps to reduce bias and is also a check that the research has been classified in a consistent and reliable way. In acknowledgement of the fact that research, as with all human activity, is conducted and reported with varying degrees of quality, the conclusions and recommendations in a systematic review are based only on the most reliable studies (Mulrow and Oxman, 1997). Based on existing consensus on critical appraisal within the context of research synthesis (e.g. Sackett *et al.*, 1996; Slavin, 1986), the EPPI-Centre has two core principles for assessing the quality of research: that the research design is appropriate to the question being addressed by the review and that the research design has been applied correctly in practice. Since previous research has shown that the use of different criteria for judging the methodological quality of studies can lead to different conclusions in the review (e.g. Peersman *et al.*, 1999), decisions made at this stage need to be reported clearly in order to allow others to assess their impact on the review’s findings (Peersman *et al.*, 2001).

No review will be entirely free from bias and succeed in locating all relevant research. However, the report of a systematic review aims to be explicit and transparent in its description of the review’s methods and the decisions which were made at various stages of its progress.

We are aware of three other reviews using systematic review methods which have assessed the effectiveness of interventions, with samples of children which include, or only include, children who could be considered to have emotional and behavioural difficulties. Quinn *et al.* (1999) examined the effectiveness of a specific type of strategy – social skills training interventions – for improving social skills (e.g. social problem solving) or reducing problem behaviours (e.g. disruptive behaviour) amongst children and young people with emotional and behavioural disorders. They found a small but significant positive effect from this type of intervention across the 35 included studies, with bigger effects found for interventions focused on teaching and measuring specific social skills compared to more global interventions.

Stage and Quiroz (1997) examined the effectiveness of school-based interventions for reducing one specific outcome – disruptive classroom behaviour – amongst children and young people in mainstream schools. Fifty-four of the 99 studies in their review included children and young people who had been labelled with specific problems (e.g. attention deficit activity disorder). They found a bigger positive effect size than that reported by Quinn *et al.* (1999), stating that school-based interventions can reduce disruptive behaviour for, on average, 78 percent of the children or young people receiving the intervention. Although the review by Stage and Quiroz focused on mainstream schools, some of the interventions evaluated by their included studies took place in a special resource room, not the mainstream classroom, and this distinction between intervention settings was found to be related to effectiveness. The review authors concluded that ‘...students treated in self-contained classrooms were more likely to evidence reductions in disruptive classroom behaviors compared to students treated in regular classroom settings’ (p 333).

School-based violence prevention interventions and aggressive behaviour were the focus of the third review (Mytton *et al.*, 2002). This review examined the effectiveness of such interventions for reducing aggressive behaviour, school/agency responses to acts of aggression, or violent injuries amongst children and young people who had been identified as ‘at-risk’ for aggressive behaviour. Across the 44 included studies, a small but significant positive effect of the interventions were found for reducing aggression, with greater effectiveness observed for interventions targeting young people aged 11 or over and for interventions administered to mixed-sex groups rather than to boys alone.

The three previous reviews all differ in their stated scope and aims. Unlike the review described in this report, none of these previous reviews has an explicit focus on supporting children with EBD in mainstream classrooms and none focuses solely on children of primary school age. In addition they all focus either on one specific intervention (e.g. social skills) or one specific outcome (e.g. aggressive behaviour).

1.5 Review question and scope

This review aimed to summarise existing research findings to answer the following question to inform policy and practice:

What are effective strategies to support primary-aged pupils with emotional and behavioural difficulties in mainstream classrooms?

The intended scope of our review is set out below.

Population and setting

The population focus of our review was primary-aged children and the setting focus was classrooms within mainstream, rather than special, schools. However, our focus was not on special classrooms (e.g. resource rooms) within mainstream schools. The population scope of our review therefore covered children whose behaviour or emotional difficulties were not so extreme that they could not be taught in mainstream classrooms, but were sufficiently frequent to require specific interventions from teachers or other adults so that they could

remain in the mainstream classroom. All children might experience infrequent episodes of problem behaviour or emotional difficulties, but these children were not the focus of our review.

Strategies for support

In terms of supporting children labelled as having EBD, our intended scope was on strategies which could support children to remain in mainstream classrooms. We were interested in strategies that could be implemented by primary school teachers either working on their own or in collaboration with other school staff (e.g. psychologists, SENCOs). Our review was not concerned with strategies using drug or psychiatric treatments. Our intervention scope covered strategies which provide children with information, social support, or skills training. Since our review was also influenced by a more context-based approach to EBD, our intended intervention scope also covered strategies which involved making changes at the whole class level (rather than individuals within classes) and to the physical or social organisation of the classroom. Our intended intervention scope did not, however, cover strategies which involved school-wide changes only. Owing to the population scope of the review, we did not intend to cover strategies for general discipline problems.

Types of studies and outcomes

Our review was concerned with studies evaluating the outcomes for children of the above types of strategies. These studies usually collect 'quantitative' data (e.g. teacher ratings of behaviour) which can be used to calculate the size of any effect of the intervention. These studies may also collect 'quantitative' or 'qualitative' data to examine factors related to the implementation of an intervention or the acceptability of an intervention to providers and recipients. Such knowledge may be especially useful for understanding how an intervention can be implemented to achieve maximum benefit and how other contextual factors may mediate any effects (e.g. type of school, type of behaviour).

2. METHODS

2.1 User involvement

The review grew out of a series of internal workshops and seminars held at the National Foundation of Educational Research (NFER) in order to explore and develop methods for systematic reviews of educational research. A number of those involved had an interest in SEN research and, since this was at a time when LEAs were being required by the Government to formulate Behaviour Support Plans, it was felt that the issue of support for children with emotional and behavioural difficulties would be a suitable area for review. This culminated in the choice of the topic for the review reported here.

An advisory group of 13 members was formed including researchers, academics and practitioners with an interest in EBD and academics with experience in conducting systematic reviews of social interventions (for a full list of members see page i). These attended a workshop to launch the review where issues about the conceptualisation of EBD and sources of research were discussed, as well as methods for systematic review. Some also gave advice by letter about identifying key pieces of research and contacts in the EBD field.

Potential users of the review are primary classroom teachers, Special Educational Needs Co-ordinators (SENCOs), heads and deputies, advisers and educational psychologists, parents and school governors, school students with and without EBD, policy-makers and researchers. However, not all of these users were represented on our advisory group. In particular, teachers, parents and children themselves were not represented. This is a limitation of the review which is discussed in Chapter 6.

2.2 Criteria for including and excluding studies

To identify studies matching the intended scope of our review we developed a set of inclusion and exclusion criteria.

Reports needed to meet the following criteria for inclusion in the review:

- Focus on primary-aged schoolchildren (usually aged four to 11- years old)
- Focus on supporting children with emotional and behavioural difficulties (i.e. report authors described their focus of interest as children with EBD and/or children labelled by teachers, psychologists or others as having difficulties with, for example, aggressive behaviour or social difficulties)
- Focus on supporting these children to remain in mainstream classrooms
- Report primary research which evaluated the effectiveness of strategies for supporting children with emotional and behavioural difficulties (outcome evaluations)

Reports were excluded for the following reasons:

- They evaluated strategies for general discipline problems.

- They evaluated strategies which involved children in mainstream schools who were taught entirely in special classes (e.g. resource rooms).
- They did not report the full results of an evaluation.
- They did not report on outcomes for children.
- They were written in a language other than English.

Unfortunately, there were insufficient resources to allow for translation of reports published in other languages. There is therefore a potential bias in the findings of this review towards the findings of studies reported in the English language.

2.3 Identification of studies

Different sources of published and unpublished research literature were searched to locate relevant reports. The searches were conducted in 1999 with an update for newer reports conducted in 2000 using the same strategies.

Searches were conducted on commercially available electronic databases (Applied Social Sciences Index and Abstracts; the British Education Index; ERIC; and PsycLIT) and in a specialised bibliographic register (the Social, Psychological, Educational and Criminological Trials Register, SPECTR, held by the Campbell Collaboration at the University of Pennsylvania). Highly sensitive search strategies were developed using combinations of controlled vocabulary terms and free-text terms restricted to the title and abstract fields. A wide range of terms for 'emotional and behavioural difficulties' (e.g. emotional problems, behaviour problems) were combined with terms for 'classroom strategies' (e.g. classroom strategies, classroom methods). The searches covered the full range of publication years available on each database at the time of searching. The full search strategies for each database are presented in Appendix A.

These searches were supplemented by several other strategies. Twenty-six journals were handsearched (listed in Appendix A); the reference lists of already identified relevant reports were scanned for further relevant citations; and personal contacts were made with researchers in the field and members of the advisory group. We did not search within the bibliographies of reviews to identify additional studies.

All citations identified by the searches were downloaded into reference managing software (ProCite). Full reports were obtained and scanned for inclusion according to the inclusion and exclusion criteria set out above.

2.4 Data extraction and quality assessment

A standardised set of data-extraction guidelines was applied to the outcome evaluations meeting the criteria set out above. These are described in full by Peersman *et al.* (1997). These guidelines enabled reviewers to extract data on the development and content of the strategies evaluated (e.g. length of intervention, provider of intervention); the design and findings of the outcome evaluation (including recruitment and characteristics of the sample); and details of any integral process evaluation (e.g. on factors influencing the implementation of the intervention, the acceptability of the intervention to

teachers and pupils). These guidelines were supplemented with additional items specifically developed for this review. These items coded studies according to the type of behaviour associated with emotional and behavioural difficulties that they focused on and the theoretical model underpinning the intervention.

We used the following operational definitions to help us to classify studies according to one or more of four types of behaviour that the evaluated strategy targeted:

- **off-task behaviour**, characterised by not engaging in the work set by the teacher, fiddling with pencils and other equipment, wandering round the classroom, etc.;
- **disruptive behaviour**, characterised by calling out in class, interfering with others' possessions, talking to others and disturbing their work;
- **aggressive behaviour**, such as arguing, fighting, name-calling, etc.;
- **social difficulties behaviour**, such as inappropriate attempts to engage with peers, refusal to engage with peers or adults.

Four codes were applied to classify the theoretical model underpinning the strategy under investigation. The four categories and their definitions are outlined below:

- Strategies underpinned by a **behavioural model** rest on the principles of learning theory, specifically the assumption that learned, 'unwanted' behaviours can be modified or extinguished, in the short term, through programmes of selective reinforcement. This approach takes little account of individuality, and could be described as an 'input-output' model. For example, one study used a time-out procedure to reduce inappropriate verbalizations.
- Strategies based on **cognitive-behavioural** model reflect the 'cognitive shift' away from a strictly behaviourist model of the person. They recognize children's ability to form mental representations, including representations of social behaviour, and to reflect upon their own behaviour. This model rests on the assumption that 'faulty' thought patterns can be modified, with a long-term impact on behaviour. For example, studies have included elements of self-instruction or self-monitoring within the context of a behaviour management programme. Studies based on social learning theory are also included in this category.
- Strategies based on a **systemic** (or **ecological**) **model** rest on the assumption that socio-structural factors are more influential than individual factors in determining behaviour. They emphasize the importance of understanding the situational context in which any particular behaviour occurs. In effect, behaviour is produced and given meaning as a result of the interaction between the individual and the system. For example, disruptive behaviour in the classroom might be 'caused' by the classroom layout.
- Strategies based on **psychotherapeutic** principles emphasize the deep and complex roots of behaviour problems, and the possibility of long-term change through personal development, with an emphasis on building

relationships: for example, 'nurture groups' in schools. Our classification encompasses psychoanalytic, humanistic and person-centred perspectives.

The set of criteria for assessing the methodological quality of the outcome evaluations in this review was adapted from a set used in previous systematic reviews conducted by the EPPI-Centre for assessing the quality of this study type (e.g. Harden *et al.*, 2001; Oakley *et al.*, 1995; Shepherd *et al.*, 2000). They build on work on the evaluation of social and educational interventions more generally (e.g. Loevinsohn, 1990; MacDonald *et al.*, 1992; Oakley and Fullerton, 1995). The criteria used in this review were developed in conjunction with other methodological work taking place at the EPPI-Centre examining the impact on reviews of employing different ways of assessing the quality of outcome evaluations. The work undertaken as a result of this review has advanced the criteria in the area of assessing the quality of reversal (ABA-type) designs in particular.

The aim of the criteria for assessing the methodological quality of outcome evaluations is to judge whether studies avoid the following sources of bias or threats to internal validity: selection bias; bias due to loss to follow-up; and selective reporting bias. Thus the criteria help to identify 'core' methodological qualities which outcome evaluations need to meet for them to be considered to be able to generate potentially reliable results about the effectiveness of social and educational interventions. The criteria were used as a basis to divide the outcome evaluations into two broad groups: 'sound' and 'not sound'.

Outcome evaluations which used the design of a randomised controlled trial were considered 'sound' if:

- the use of an acceptable method of randomisation was reported (*low risk of selection bias*);
- the attrition rate was reported AND it differed across intervention and control or comparison group by less than 10 percentage points and was less than 30 percentage points overall OR the baseline values of major prognostic factors were balanced between groups for all those remaining in the study for analysis (*low risk of bias due to loss of follow-up*);
- data were reported on all outcome measures at follow-up (*low risk of selective reporting bias*).

Outcome evaluations which used the design of a trial with non-random allocation to intervention and control or comparison groups were considered 'sound' if:

- baseline values of major prognostic factors were reported for each group for all participants allocated AND baseline values of major prognostic factors were balanced between groups in the trial OR adjustments were made for any baseline imbalances in major prognostic factors between groups (*low risk of selection bias*);
- the attrition rate was reported and it differed across intervention and control or comparison group by less than 10 percentage points and was less than 30 percent overall OR the baseline values of major prognostic factors were balanced between groups for all those remaining in the study for analysis (*low risk of bias due to loss of follow-up*);
- data were reported on all outcome measures at follow-up (*low risk of selective reporting bias*).

These criteria were adapted for outcome evaluations which used a ‘reversal’ design, a design commonly used to evaluate strategies in this field. These were considered sound if:

- baseline values of major prognostic factors were reported for all participants as recruited into the study AND the value of all outcome measures reverted to baseline values during the reversal phase(s) (*low risk of carryover bias*);
- the attrition rate was reported and it was less than 30 percent of the original number of participants (*low risk of bias due to loss of follow-up*);
- data were reported on all outcome measures at follow-up (*low risk of selective reporting bias*).

Assessing the risk of these various biases is a complex exercise. This complexity is further compounded as reviewers have to rely on authors’ reports of their study. This is particularly acute for assessing the risk of selective reporting bias. Our judgements on this issue were dependent on all outcomes measured being listed in the methods sections of reports. If all measured outcomes were not listed in the methods, then we would not be able to detect selective reporting bias even if it had occurred.

2.5 Synthesis of findings

Description of research activity

The characteristics of the outcome studies and the interventions they evaluated were described according to the codes used to extract data described in the previous section. This covered both **substantive attributes**, such as the distribution of studies according to the theoretical model underpinning the intervention they evaluated and the outcomes targeted by the intervention; and **methodological attributes**, such as the number of outcome studies that also conducted an integral process evaluation.

Findings on effectiveness

A narrative synthesis of the findings of the studies was undertaken. Reviewers’ conclusions about the effectiveness of strategies were summarised according to the theoretical framework which underpinned the intervention(s) and the type of behaviour associated with EBD which the intervention addressed. Comparisons were made between those studies judged to be ‘sound’ according to the criteria developed for the review and those judged to be ‘not sound’.

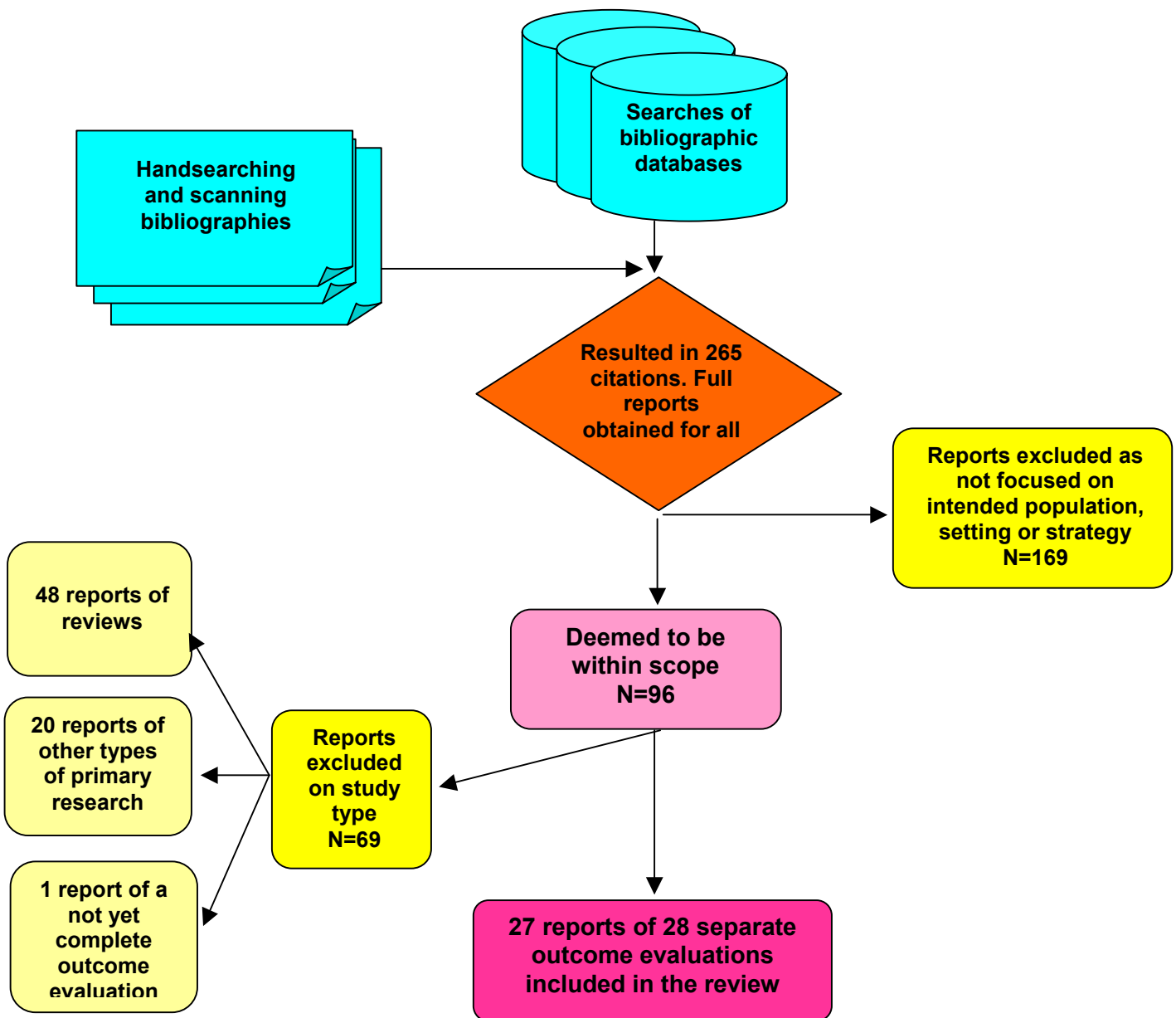
3. RESULTS: DESCRIPTION OF RESEARCH ACTIVITY

3.1 Identification of studies

The search strategies yielded a total of 265 citations.

The processes involved in this initial screening are shown in figure 3.1.

Figure 3.1: Flow of literature through the review



Full reports were obtained and processed for all 265 citations. A total of 96 reports were identified to be within the scope of the review (classroom strategies, in mainstream schools, to support primary aged children with EBD). Forty-eight were excluded at this stage as they presented reviews of the field or did not report research findings. These reports were used, however, to inform the background to the review and conceptual grounding for the presentation of the findings of the review. Of the remaining 48 reports of primary research, 27 reported in full evaluations of the effects of classroom strategies for supporting pupils with EBD (i.e. 'outcome evaluations'). Of those that were excluded at this stage (n=21), 20 presented other types of research: studies which did not aim to evaluate classroom strategies (e.g. surveys of teachers) and studies which simply described classroom strategies or evaluated the processes involved rather than the effects on outcomes. One report did describe an outcome evaluation, but its results were not reported in full (Iszatt and Wasilewska, 1997). One of the 27 reports described two outcome evaluations and therefore the total number of outcome evaluations was 28 (Hastings and Schwieso, 1995). Hereafter, the two studies described in this report are referred to as Hastings and Schwieso, 1995 {study 1} and Hastings and Schwieso, 1995 {study 2}.

Table 3.1 shows the productiveness of the different sources searched.

Table 3.1: Number of outcome evaluations (N=28) found within different search sources

Source	N
Commercial bibliographic databases	18
Specialised bibliographic registers	2
Personal contact	0
Reference lists	2
Handsearching	6
Total	28

Two-thirds of the 28 outcome evaluations were found on commercially available bibliographic databases: 14 were found on ERIC, two on the British Education Index, and one each on ASSIA and PsycLIT. Two studies were found on SPECTR. A further eight studies were identified uniquely by scanning the reference lists of already identified reports and handsearching journals. The fact that just over one-third of all the included outcome evaluations were found through means other than commercially available databases illustrates the drawbacks of relying solely on this source.

Just over half of the reports were written or published in 1991 or later (n=16), and just under one-third between 1986 to 1990 (n=9). Three reports were written or published between 1976 and 1985. The year of publication of the earliest study was 1971 (Blackwood, 1971).

Although the majority of studies were reported in journal articles (n=25), three unpublished reports were identified. Of these three, one was reported in fulfilment for a Master's degree (Court *et al.*, 1995), one was a reported as a conference presentation (Lochman *et al.*, 1987) and one was a research report (Brownsmith, 1976).

3.2 Characteristics of interventions evaluated in outcome studies

This section describes the characteristics of interventions in more detail according to the country in which they were carried out; the types of behaviour and children they targeted; and the types of interventions implemented (e.g. theoretical underpinnings; intervention providers).

Country in which interventions were implemented

Table 3.2: Number of outcome evaluations according to country in which their studied interventions were implemented (N=28)

	N
USA	18
UK	4
Australia	2
Canada	2
Norway	1
Holland	1
Total	28

Most of the studies evaluated interventions implemented in the US (n=18). Four were from the UK (Hastings and Schwieso, 1995 {study 1}; Hastings and Schwieso, 1995 {study 2}; Kelly, 1999; Whedall and Panagopoulou-Stamatelatu, 1991). Australia and Canada accounted for two each of the remaining studies; other European countries accounted for the remaining two studies. These figures may reflect bias within the sources searched towards studies published within the US and the UK and the exclusion of studies reported in non-English languages.

Types of emotional and behavioural difficulties targeted by the interventions

As discussed earlier in this report, the concept of emotional and behavioural difficulties is complex and not easily defined. The studies included in this report usually provided an operational definition in terms of the types of behaviour on which they were focused. Broadly speaking, these were as follows:

- **off-task behaviour**, characterised by not engaging in the work set by the teacher, fiddling with pencils and other equipment, wandering round the classroom, etc.;
- **disruptive behaviour**, characterised by calling out in class, interfering with others' possessions, talking to others and disturbing their work;
- **aggressive behaviour**, such as arguing, fighting, name-calling, etc.;
- **socially inadequate behaviour**, such as inappropriate attempts to engage with peers, refusal to engage with peers or adults.

These behaviours were often seen in combination and some interventions had several components, each addressing different aspects of the problematic behaviour. Table 3.3 shows the four main types of behaviour targeted in the outcome studies. Eleven studies targeted more than one type of behaviour so the total of Table 3.3 is 39. The majority of studies targeted off-task and/or disruptive behaviours. Fewer studies targeted aggressive behaviour or social difficulties than off-task and disruptive behaviours.

Table 3.3: Types of behaviour targeted by interventions in included studies (N=28)

	N
Off-task	13
Disruptive	12
Aggressive	8
Social difficulties	6
Total*	39

*Total does not add up to 28 as a study could target more than one type of behaviour.

Characteristics of children targeted for intervention

In all the studies, individual children or whole classes of children had been identified by their teacher or parent or a psychologist as displaying one or more of the types of behaviour described in the above section. Various other characteristics of the children or classes were reported (e.g. details of any medication; whether receiving special services), but only socio-demographic characteristics were reported with any consistency. These are shown below in Table 3.4.

In terms of the age of the children receiving the interventions in the outcome evaluations, all but one of the reports of the studies gave specific details of age. For one study (Blackwood, 1971), it was reported only that the children were from an elementary school in the US. In the remaining 27 outcome evaluations, ages ranged from five to 13-years-old. Most studies included a range of ages (n=20), others focused on children of the same age (e.g. five-years-old, seven-years-old). Of those that included a range of ages, most (n=12) covered two or three years (e.g. 7 to 9 years or 8 to 9 years). The remaining covered a wider age range of between four and eight-years-old (e.g. 10- to 13-years-old; six- to 13-years-old). Studies were split more or less equally between those focused exclusively on children younger than 10-years-old (n=13) and those which included children of 10-years-old or older (n=14).

Table 3.4: Social characteristics of children studied in the outcome evaluations (N=28)

	N
Sex	
Females and males	17
Included males only	9
Not stated	2
Total	28
Socio-economic status	
Stated	14
Not stated	14
Total	28
Ethnicity	
Stated	10
Not stated	18
Total	28
Region	
Rural	5
Urban	12
Not stated	11
Total	28

Table 3.4 suggests that whilst reporting was high for sex, details of the children's socio-economic status, ethnicity and region were not as consistently reported across studies.

Nearly two-thirds of studies targeted both boys and girls, whilst one-third focused specifically on boys only. In terms of socio-economic status, five studies were conducted with children described as being from mainly working class or low income families or in schools described as serving deprived populations (Blackwood, 1991; Hastings and Schwieso, 1995 {study 2}; Kelly, 1999; Nelson, 1996; Shook *et al.*, 1990). Two studies were conducted with children described as being from mainly middle-class or middle-income families (Bushrod, 1995; Hastings and Schweiso, 1995 {study 1}). The remaining studies were conducted with children from both types of background. Only in the reports of 10 studies were any details of the ethnicity of children presented. Four studies described the children as being mainly or predominantly 'black' or 'white'; the remainder included children from a variety of ethnic backgrounds. The region in which schools were located was reported for 17 studies. The majority of these (n=12) were located in urban or suburban areas.

Theoretical models and types of intervention

The majority of studies evaluated interventions based on behavioural or cognitive behavioural models, with fewer systemic interventions studied by outcome evaluations and no psycho-therapeutic interventions.

Table 3.5: Theoretical model underpinning the intervention evaluated by outcome studies (N=28)

	N
Cognitive behavioural	14
Behavioural	11
Systemic	4
Psychotherapeutic	0
Total*	29

*Total does not add up to number of studies as one study evaluated an intervention underpinned by two types of theoretical models (Nelson, 1992).

Table 3.6 shows the people providing the interventions studies in our included outcome evaluations. In 20 of the studies, interventions provided by teachers were evaluated. In all but one of these studies, the teachers were classroom teachers (Armstrong *et al.*, 1988); the school principal delivered the intervention evaluated by the remaining study. A significant number of studies evaluated interventions delivered by other professionals such as researchers or psychologists. This raises questions about whether the interventions evaluated by these studied could be delivered by classroom teachers. In two studies, parents were involved in delivery of the interventions evaluated (Bushrod, 1985; Davies and McLaughlin, 1989) and in four studies peers helped to deliver the evaluated interventions (Broussard and Northup, 1997; Fowler *et al.*, 1996; Kamps *et al.*, 1999; Kelly, 1999). For example, Davies and McLaughlin (1989) evaluated the effects of a daily report card shown to parents who delivered positive reinforcement for improvements in disruptive behaviour, and Kamps *et al.* (1999) evaluated a multi-component intervention involving peer tutoring in maths and reading.

Table 3.6: Providers of interventions studied by the outcome evaluations (N=28)

	N
Teacher	20
Researcher	6
Peer	4
Parent	2
Psychologist	3
Not stated/unclear	2
Total*	37

*Total does not add up to number of studies as nine studies evaluated an intervention delivered by more than one type of provider.

Development of interventions

The vast majority of studies evaluated strategies implemented on the basis of 'normative need', that is initiated as a result of experts (usually researchers, psychologists) who made the judgement about how to intervene as well as whether there was a need to intervene. Sometimes teachers or parents were involved in these assessments. None of the studies evaluated strategies implemented as a result of 'felt need', that is on the basis of asking children themselves (the intended recipients of interventions) about how to intervene or whether an intervention is needed.

Table 3.7: Type of needs assessment which initiated the strategies evaluated by the outcome studies (N=28)

	N
Based on 'normative need'	22
Based on 'felt need'	0
Not based on a needs assessment	2
Not stated	4
Total	28

3.3 Methodological characteristics of outcome evaluations

3.3.1 Study designs

Table 3.8 shows the types of designs used to evaluate the effectiveness of the classroom strategies.

Table 3.8: Evaluation design employed in the outcome studies (N=28)

	N
Employment of control/ comparison groups	9
<i>Random allocation of groups</i>	6
<i>Non-random allocation</i>	3
'One-group' designs	19
<i>Reversal design</i>	8
<i>Other</i>	11
Total	28

Just under one- third of outcome studies (n=9) employed a control or comparison group in their evaluation design. Six of the nine trials used random allocation of children or groups of children, whereby the likelihood of each child or group of children receiving the classroom strategy was determined purely by chance (Blackwood, 1971; Castelijns, 1996; Lochman *et al.*, 1993; Lochman *et al.*, 1987; Manning, 1988; Omizo *et al.*, 1988). Methods for random allocation were not well reported; none of the six randomised controlled trials gave any information on how randomisation was achieved. The three studies using non-

random methods to allocate children or groups of children to different groups gave some detail on methods (Kamps *et al.*, 1999; Nelson, 1996; Sawyer and MacMullin, 1997). In two studies (Nelson, 1996; Sawyer *et al.*, 1997) schools were identified for the control or comparison group on the basis of their match to intervention schools on key characteristics (e.g. size of school, socio-economic status of school population).

All but one of the studies employing a control or comparison group evaluated cognitive-behavioural interventions. One study evaluated a systemic and behavioural intervention (Nelson, 1996).

Just over two-thirds of studies (n=19) used 'one-group' designs in which the intervention was evaluated solely with the group of children receiving it. Eight of these outcome evaluations used a reversal design (Brownsmith, 1976; Broussard and Northup, 1997; Bushrod, 1995; Crouch *et al.*, 1985; Fowler *et al.*, 1986; Hastings and Schwieso, 1995 {study1}; Martens *et al.*, 1997; Salend and Gordon, 1986). Reversal designs involve one child or several children for which outcomes are measured during a baseline period, an intervention period, and then a period when the intervention is withdrawn. This design is also often described as ABA in which A denotes no intervention and B denotes the period when the intervention takes place. More complex variations on this design are also found, e.g. ABACA, in which different interventions are described as B and C. Only one study involved such a complex design (Martens *et al.*, 1997). Most of the outcome evaluations employed this design with a number of children, but only one involved a single child (Bushrod, 1995). The 'withdrawal' or 'reversal' to baseline conditions is a key component of this design. During this phase, it is expected that outcome values will return to those at baseline. Thus the appropriateness of this design depends on whether it is used to evaluate an intervention which is not expected to have any long-term effects. Five studies employing a reversal design evaluated behavioural interventions, two studies evaluated cognitive behavioural interventions, and one study evaluated a systemic intervention.

The remaining 11 studies using 'one-group' designs involved a number of approaches. Six of these used a design involving multiple baseline and follow-up measurements of outcomes (Armstrong *et al.*, 1988; Davies and McLaughlin, 1989; Ferre and Ferre, 1991; Hastings and Schwieso, 1995 {study2}; Shook *et al.*, 1990; Whedall and Panagopoulou-Stamatelatu, 1991). Essentially these are similar to reversal designs as they involve multiple measurements of outcomes before and after the intervention is implemented, but they do not include a 'withdrawal' phase and it is expected that the intervention will have long-term effects. One of these employed this design with a single child (Ferre and Ferre, 1991). Of the other five, one was described as a case study whereby data were presented qualitatively from observations of students undertaking various activities within the programme (Jordan and Le Metais, 1997) and four measured outcome(s) once before the intervention and once after the intervention (Court *et al.*, 1995; Flem *et al.*, 1998; Kelly, 1999; Shepp and Jenson, 1983). Five studies employing these designs evaluated behavioural intervention, four cognitive behavioural interventions and two systemic interventions.

3.3.2 Sample size of outcome evaluations

Table 3.9 shows the size of the samples employed in the outcome evaluations. The majority of studies used relatively small numbers of children. Nearly half of the studies involved fewer than 10 children, and only one study included more than 100. With such small sample sizes, questions arise about whether studies had

sufficient statistical power to detect any effect of the interventions that they were evaluating.

Table 3.9: Sample sizes employed in outcome evaluations (N=28)

	N
Less than 10	13
Between 11 and 49	7
Between 50 and 99	5
100 or more	1
Not stated	2
Total	28

3.3.3 Outcome measurement

Table 3.10 shows the types of outcomes measured in the studies.

Table 3.10: Types of outcomes measured in the studies (N=28)

	N
Observed behaviour	27
Reported behaviour	11
Self-esteem	7
Academic achievement	3
Social skills/ peer acceptance	3
Other	4
Total*	55

* Total does not add up to the number of studies as studies measured more than one outcome.

Nearly half all outcomes were based on observed behaviour and all but one of the studies measured behaviour through such direct observation. This was carried out using previously validated data collection tools such as the 'Behaviour Observation Schedule for Pupils and Teachers' (Brea and Calchera, 1971) or tools developed specifically for a particular study. Fewer outcomes were non-behavioural, such as self-esteem or social skills. Again these were measured by previously validated tools or tools developed for specific studies for use by teachers, parents, psychologists or children themselves. These outcomes could therefore be self-reported, but were more often based on observations of children made by others. Other outcomes included the number of exclusions from school, teacher stress and practical skills.

3.3.4 Process measures

When conducted alongside an outcome evaluation, process evaluations can help to shed light on why strategies work or do not work, and can provide useful data on implementation issues and various 'stakeholder' perspectives. Only seven of the outcome evaluations also conducted integral process evaluations (Blackwood, 1971; Castelijns, 1996; Crouch *et al.*, 1985; Hastings and

Schwieso, 1998a; Jordon and Le Metais, 1997; Kamps *et al.*, 1999; Nelson, 1996). For example, Hastings and Schwieso, 1995 {study 1}, examined children's own perception of the classroom strategy under investigation whilst Castelijnns (1996) examined the views of teachers on the strategy evaluated by this author.

4. ASSESSMENT OF METHODOLOGICAL QUALITY

Assessing the methodological quality of outcome evaluations is important because studies of differing quality can produce different findings. The findings of those of a higher quality are more likely to represent the 'true' effect of the intervention tested. Previous empirical work examining the impact of study quality on findings about effectiveness has tended to show that studies of poorer quality tend to over estimate the effectiveness of interventions, increasing the chance that harmful or ineffective interventions are mistaken for effective ones (e.g. Kliejnen *et al.*, 1997; Peersman *et al.*, 1999).

We assessed outcome evaluations according to three criteria: whether studies reduced selection bias, bias due to loss of follow-up, or selective reporting bias (Table 4.1). A detailed description of these criteria can be found in Chapter 2.

Table 4.1: Number of outcome evaluations (N=28) meeting the quality criteria employed in this review

	N
(1) Low risk of selection bias/carryover bias	14
(2) Low risk of bias due to loss to follow-up	20
(3) Low risk of selective reporting bias	24
Studies meeting all three criteria	10

Whilst the majority of studies appeared to avoid selective reporting bias (n=24), and nearly three-quarters were judged to have a low risk of bias due to loss of follow-up (n=20), only half of the outcome evaluations were judged to have a low risk of selection or carryover bias (n=14). Six studies achieved this through random allocation of children (or groups of children) to receive the intervention or a control/comparison condition (Blackwood, 1971; Castelijns, 1996; Lochman *et al.*, 1993; Lochman *et al.*, 1987; Manning, 1988; Omizo *et al.*, 1988). Of the three studies employing a control or comparison group which did not use random allocation, two achieved low risk of selection bias as baseline values of major prognostic factors were balanced between the groups in the trial (Kamps *et al.*, 1999; Sawyer and MacMullin, 1997). Of the nine studies which employed a reversal design rather than a trial, six were deemed to have a low risk of carryover bias as the value of all outcome measures reverted to baseline values during the reversal phase(s) (Broussard and Northup, 1997; Crouch *et al.*, 1985; Fowler *et al.*, 1986; Hastings and Schwieso, 1995 {study 1}; Salend and Gordon, 1986; Shepp and Jensen, 1983).

Ten studies met all three criteria and these were deemed to be methodologically 'sound' and therefore capable of producing potentially reliable findings for this review about the effectiveness of strategies to support primary-aged children with EBD in mainstream classrooms (Broussard and Northup, 1997; Crouch *et al.*, 1985; Fowler *et al.*, 1986; Hastings and Schwieso, 1995 {study 1}; Lochman *et al.*, 1987; Manning, 1988; Omizo *et al.*, 1988; Salend and Gordan, 1986; Sawyer and MacMullin, 1997; Shepp and Jensen, 1983).

Due to the particular difficulties associated with the assessment of selective reporting bias, some studies may have been judged favourably on this criteria

even if selection bias had been introduced into the study. This situation would arise if study reports failed to give details of all outcomes assessed in their methods section.

Other criteria related to the execution and analysis of evaluation research include 'adequately concealed random allocation' (i.e. attempts made to prevent the subversion of the randomisation process) and 'blinded outcome measurement'. Only one study met the criteria of adequately concealed random allocation (Casteljins, 1986).

5. WHICH STRATEGIES ARE EFFECTIVE?

In Chapter 3, we described the outcome evaluations according to one of four models that underpinned the particular intervention they evaluated. We also described them according to one of four types of difficulties which come under the broad heading EBD interventions aimed to target. In Chapter 4, we assessed the methodological quality of the outcome evaluations to determine which ones met our criteria for methodological soundness. We considered those which met the criteria to be 'sound' and thus capable of providing more reliable or trustworthy estimates of the effectiveness of interventions. Table 5.1 summarises the results of this activity. It provides an indication of the limited evidence base on the effectiveness of different strategies.

The evidence base is most developed for behavioural models targeting off-task or disruptive behaviour and for cognitive behavioural models targeting aggression. It is less developed for systemic models, or for any type of model for addressing social difficulties. In this review we found no studies that could currently contribute to the evidence base for the effectiveness of strategies based on psychotherapeutic models. There were no studies based on this model included in the review. We found one report on 'nurture groups' (Iszatt and Wasilewska, 1997), but this was a brief review of some findings from monitoring and evaluation of 'nurture groups' in Enfield in the UK. It was not possible to access the original research reports or other data, which were presented in a very summarised form in the article, so we decided that there was not enough information to include this study in the review. Current, but yet to be completed work, by Cooper *et al.* (2001) is likely to be an important contribution to the evidence base on the effectiveness (or otherwise) of 'nurture groups'.

This chapter synthesises the findings of the studies included in this review, giving more weight to those that were assessed to be methodologically sound. Working within the limits of the current evidence base, it examines what we know and do not know about the effectiveness of (i) behavioural strategies for targeting off-task or disruptive behaviour (section 5.1); (ii) cognitive behavioural strategies for off-task or disruptive behaviours (section 5.2); (iii) cognitive behavioural strategies for aggressive behaviours and social difficulties (section 5.3); and (iv) systemic strategies for reducing off-task behaviour (section 5.4). These four categories were not *a priori* categories, but are based on categories developed to fit the available studies. For example, we did not find any sound studies which evaluated behavioural strategies targeting aggressive behaviour or social difficulties, and for systemic strategies we only found sound studies evaluating their effects on off-task behaviour. These categories therefore reflect a convenient, but sensible way to summarise the findings of the review.

Within each of these sections, the findings of the methodologically sound studies are synthesised. We then turn to the other studies. As these were not judged to be methodologically sound, it is difficult to trust their findings. In some of these studies there was no control or comparison group, or reversal phase in their designs. This makes it more difficult to rule out other explanations of any observed changes in behaviour (e.g. passage of time). In other studies which did employ such aspects in their designs, problems with the execution of the

Table 5.1: Outcome evaluations (N=28) according to theoretical model underpinning evaluated intervention, type of EBD targeted and methodological soundness

Behavioural	Off-task		Disruptive		Aggressive		Socially inadequate	
	Sound	Other	Sound	Other	Sound	Other	Sound	Other
	Crouch <i>et al.</i> (1985) Shepp and Jenson (1983)	Davies and McLaughlin (1989) Ferre and Ferre (1991) Martens <i>et al.</i> (1997) Wheldall <i>et al.</i> (1991)	Broussard and Northup (1997) Crouch <i>et al.</i> (1985) Salend and Gordon (1987)	Armstrong <i>et al.</i> (1999) Bushrod (1995) Davies and McLaughlin (1989) Shook <i>et al.</i> (1990)	X	X	X	X
Cognitive behavioural	Sound	Other	Sound	Other	Sound	Other	Sound	Other
	Manning (1988) Shepp and Jensen (1983)	Casteljins (1986) Kamps <i>et al.</i> (1999)	X	Blackwood (1971) Kamps <i>et al.</i> (1999)	Lochman and Lampron (1987) Omizo <i>et al.</i> (1988) Sawyer and MacMullin (1997)	Court <i>et al.</i> (1995) Kamps <i>et al.</i> (1999) Lochman <i>et al.</i> (1993)	Fowler <i>et al.</i> (1986)	Brownsmith (1976) Flem <i>et al.</i> (1988) Jordon and Le Matais (1997)
Systemic	Sound	Other	Sound	Other	Sound	Other	Sound	Other
	Hastings and Schwieso (1995a)	Hastings and Schwieso (1995b)	X	Kelly (1999) Nelson (1996)	X	Kelly (1999) Nelson (1996)	X	X
Psycho-therapeutic	Sound	Other	Sound	Other	Sound	Other	Sound	Other
	X	X	X	X	X	X	X	X

NB: Some studies appear in more than one category

design and/or the reporting of the studies rendered any observed effects of the intervention unclear. However, such studies do provide further illustrations of how strategies based on different models / targeting different types of behaviour might be operationalised in the classroom and indicate unanswered questions for future research.

5.1 Are strategies based on a behavioural model effective for reducing ‘off-task’ or ‘disruptive’ behaviour?

5.1.1 What do the sound studies tell us?

Four sound studies evaluated strategies based on this type of model (Broussard and Northup, 1997; Crouch *et al.*, 1985; Salend and Gordon, 1987; Shepp and Jensen, 1983). Although each of these involved strategies with slightly different components, common was the provision of rewards for on-task or non-disruptive behaviour and loss of rewards or sanctions for off-task or disruptive behaviour. All of these studies found that, when these types of interventions were introduced, reductions in children’s off-task and/or disruptive behaviour occurred, with behaviour patterns returning to usual levels when the intervention was withdrawn. However, for two studies, the reviewers were cautious about the observed positive effects of the interventions due to limitations of the single subject design employed in them (Broussard and Northup, 1997; Shepp and Jensen, 1983).

The results of the sound studies are discussed in more detail below.

The study by **Shepp and Jensen (1983)** involved the evaluation of the simplest example of these types of strategies. Using a reversal design, they introduced rewards and sanctions to reduce off-task behaviour of a seven-year-old hyperactive boy with moderate learning difficulties in the US. The child was rewarded with one minute of time to use as he wanted if he was on-task when observed by the teacher. He would lose one minute if not on-task. The proportion of time on-task increased by an average of 12 percent over a five-day period, but returned to usual levels when the intervention was withdrawn. (This study also compared the effectiveness of this behavioural strategy to a cognitive behavioural strategy. This is discussed in the next section.)

The other three studies all involved peer pressure or peer support as added dimensions. In both the Crouch *et al.* (1985) and Salend and Gordon (1987) studies, tokens could be earned or lost by the group, rather than individually. In the study reported by Broussard and Northrup (1997), peers were also used, in this case to provide a reward for the good behaviour of individuals.

The intervention described in the study by **Crouch *et al.* (1985)** was designed to manage the bad behaviour of third-graders in the US during art lessons. At regular intervals during the class (approximately every three minutes), the teacher scanned the room and recorded the number of children who were displaying the following types of behaviours: on-task (e.g. working independently, raising hand, quiet in line); off-task (e.g. looking away, talking, sleeping); or disruptive (e.g. talking loudly, pushing, running). A feedback chart was displayed in the classroom. This was used by the teacher to provide immediate and delayed rewards. If 80 percent of children were on task when

the teacher scanned the room, a tick was placed on the chart and praise given to the children. If the class earned 12 or more check marks, a large check mark was put at the top of the chart. Two of these earned the class participation in a 10-minute free-time period in which they received a drink and could talk or listen to music. If the class was not rated on-task, no mark was recorded and no comment was made. If a student was disruptive, a mark was made on the chart and the teacher gently reprimanded that student. If this happened four times in one day, that student was denied access to morning break time the next day. If six children were disruptive in any one period, the whole class would lose their reward and a brief time-out (head on desk) was instituted for the whole class.

The evaluation used a reversal design in which the above intervention was introduced and withdrawn twice over a 21-week period with a sample of 22 children aged eight- and nine-years-old. Results showed that during the two intervention periods, on-task behaviour increased by more than 20 percent, whilst off-task and disruptive behaviour decreased by more than 10 percent. When the intervention was withdrawn, behaviour changed in the direction of usual levels. The success of this intervention may be related to its particular key features. Rewards and punishments were given on the basis of either the behaviour of the whole group or the behaviour of individuals. Thus, although the intervention was directed towards whole class behaviour, it could also target individuals, so that the whole class would not be punished for the bad behaviour of one or two children. The authors note that the mixture of group and individual strategies minimises the possibility that one or two students may find it more reinforcing to spoil the groups chances of a reward rather than to assist in earning it. Another particular feature of this intervention was that rewards were given either immediately or delayed. The authors note that this avoids the problem of a group's behaviour deteriorating once it perceives that it has lost its reinforcement for the day.

Salend and Gordon (1987) targeted 'inappropriate verbalisations' in their study of a 'time-out ribbon' procedure with two groups of children between the ages of eight- and 10-years-old in the US. Although this strategy was aimed at particular children (eight boys and one girl, all with learning difficulties), it was based on rewarding or punishing the whole class for bad behaviour rather than these individuals. The 'time-out ribbon' procedure operated as follows. The teacher attached a red ribbon measuring 14 inches by half an inch to an easel in view of the children. The children were rewarded with tokens – one token for every two minutes when they refrained from inappropriate verbalisations. Tokens could be exchanged for a variety of treats, such as 15 minutes of free time (100 tokens). Each time a member of the group made an inappropriate verbalisation, the ribbon was removed and tokens could not be earned for a one-minute period. When the group had exhibited appropriate behaviour for one minute, the ribbon was replaced and tokens could be earned as before.

The evaluation used a reversal design in which the above intervention was introduced and withdrawn twice over a seven-week period. There was a substantial decrease in inappropriate verbalisations during the ribbon procedure with levels returning to those usually observed when the procedure was withdrawn. The authors suggest that the ribbon procedure magnified the effect of the token rewards by making the groups aware of the target behaviour and the loss of rewards if the ribbon was removed. There appeared to be no negative consequences (i.e. group conflict over blame) of using the group procedure.

In the **Broussard and Northrup (1997)** study, peers were used as a reward for good behaviour. The intervention was developed on the basis of a 'functional analysis' of the disruptive behaviour of four male children aged seven- to nine-years-old in a US classroom. The functional analysis aimed to examine the conditions that were associated with the occurrence of their disruptive behaviour. Their behaviour under three conditions was observed: teacher attention, peer attention and time-out. 'Time-out' was defined as the child being turned away from the academic task for at least 30 seconds and the absence of teacher or peer attention. It was found that, although disruptive behaviour was associated with all three conditions, it was most associated with peer attention. An intervention delivered by peers was therefore developed.

Based on the principle of 'differential reinforcement of other behaviour', peer attention for appropriate behaviour was provided by allowing children to earn time with a peer of their choice contingent upon the non-occurrence of disruptive behaviours. This peer attention could be earned during 10-minute sessions. Participants were given tokens by their classroom teacher, worth one minute of time with a peer, which they could exchange at the end of the session for appropriate activity with the chosen peer (e.g. working on an art project, 'tic-tac-toe'). Tokens were given every minute for non-occurrence of disruptive behaviours. Over time, session length was gradually increased to 30 minutes, and the frequency with which tokens were given out was reduced to 10 minutes, so that the children behaved appropriately for longer periods with less reward.

The evaluation used a reversal design in which the above intervention was introduced and withdrawn twice over a period of between 10 to 30 weeks. During usual conditions, the average occurrence of disruptive behaviour ranged from 23 percent to 51 percent across the four participants. During the intervention period, the average occurrence of disruptive behaviour ranged from 0 percent to 12 percent. Reductions remained constant when the session lengths increased and the occurrence of rewards decreased. This study suggests that reinforcing appropriate behaviour using a system of rewards which provide children with access to time with chosen peers can reduce the occurrence of disruptive behaviour amongst children previously identified as showing high and/or problematic levels of disruptive behaviour. As the classroom teacher did not conduct the procedures, whether this approach could translate into a useful strategy for the classroom teacher is questionable. This is partly answered by the authors who note that teachers have reported using similar techniques on a more informal basis to those used in the study. In addition, the fact that effects were maintained during longer sessions with fewer rewards makes the technique more amenable to use by classroom teachers. There are also ethical questions about the use of peers as rewards in this way.

In summary, based on four rigorous studies with children aged seven- to ten-years-old in the US identified as disruptive/identified with emotional and behavioural difficulties **there is some evidence that behavioural strategies using token systems for delivering rewards and sanctions could be effective for reducing behaviour which is disruptive to children's own or others' learning in the mainstream classroom. Positive effects are immediate and restricted to the period of intervention delivery.** As might be expected, long-term changes in behaviour as a result of these kinds of interventions were not evaluated. Although these strategies can be implemented only for individual children within the classroom, currently the only trustworthy research evidence which exists is for strategies implemented with

the whole class. Thus, ***on the current evidence, such strategies should attempt to incorporate some element of peer support and pressure.***

These relatively simple whole class interventions may be particularly attractive to teachers. As Crouch *et al.* (1985) note, such interventions address a number of teacher concerns: not having enough time, energy or skills to implement complex interventions for just one or two students; ethical concerns about giving special treatment to one or two students; and the need for strategies to deal with entire classes displaying disruptive behaviours.

5.1.2 Insights from other studies and unanswered questions

Seven other studies included in the review evaluated strategies based on a behavioural model. These provide further illustrations of how strategies based on a behavioural model might be operationalised in the classroom, but do not enable us to conclude anything about their effectiveness.

Incorporating a token system of rewards and sanctions, Ferre and Ferre (1991) evaluated an intervention package named 'Assertive Discipline' with a five-year-old boy in a rural school in the US. This involved (i) establishing rules for the whole class, which were posted up in the classroom; (ii) reviewing each day with the pupil these rules and the consequences of breaking these rules (name on blackboard; five minutes time-out); and (iii) positive reinforcement for not talking or disrupting others ('smiley faces'; positive report sent home; independent study time in the art centre).

Two Canadian studies evaluated the use of daily report cards which involved parents in the delivery of the token system for boys between the ages of five and eight. The study by Davies and McLaughlin (1989) sent a report card home to parents who were asked to give praise and rewards if the report was good or satisfactory and to ignore the report if it was unsatisfactory. The study by Bushrod *et al.* (1995) involved giving children 'happy faces' at the start of the day. These were removed if the child behaved badly. Parents were asked to give big or small rewards depending on the number of smiley faces brought home.

Armstrong *et al.* (1988) and Martens *et al.* (1997) both evaluated the effectiveness of teacher praise for reducing off-task and disruptive behaviour amongst six- to 10-year-olds in classrooms in the US. The intervention evaluated by Armstrong and colleagues involved the school principal training teachers to increase the amount of praise they gave to all children. In contrast, Martens and colleagues tested the effectiveness of teacher praise to specific boys identified with behaviour problems. Interestingly, this study attempted to test the effect of praise alone as compared with praise plus redirection towards the task in hand, or praise and positive attention.

One further study evaluated a combined strategy incorporating behavioural and cognitive behavioural elements (Wheldall and Panagopoulou-Stamatelatos, 1991). This is considered in the next section.

Because all of the above strategies have not yet been rigorously evaluated, ***it is currently unknown whether assertive discipline, the use of daily report cards or training teachers to use praise are effective strategies for reducing off-task or disruptive behaviour in the classroom.***

5.2 Are strategies based on cognitive-behavioural models effective for reducing 'off-task' or 'disruptive' behaviour?

Strategies based on behavioural models have so far only been shown to be effective for as long as the strategy is in place. Strategies based on cognitive behavioural models strive for more long-term or permanent changes in behaviour. These tend to require longer, more intensive 'one-off' interventions, but may offer advantages over behavioural strategies that need to be implemented continually. This section examines whether there is any evidence to support the effectiveness of this approach.

5.2.1 What do the sound studies tell us?

Only two sound studies evaluated strategies based on this model (Manning, 1988; Shepp and Jensen, 1983). These both involved teaching self-instructional strategies for monitoring and reducing off-task and other types of inappropriate classroom behaviour. One study concluded that this strategy was effective, with positive effects maintained at a three-month follow-up, and the reviewers agreed with this conclusion (Manning, 1998). The other study, which compared a behavioural strategy to a cognitive strategy, concluded that the cognitive strategy was not effective (Shepp and Jensen, 1983). However, in this case, the reviewers judged the effects of the intervention to be unclear due to the limitations of designs using single subjects.

Manning (1988) taught the technique to children aged seven to nine in a large primary school in the US. A target group of 55 children identified by the teacher as exhibiting off-task behaviour were assigned randomly to no intervention or to receive an eight-hour training programme consisting of three major components: modelling, practising and cueing. For *modelling*, the children viewed adult and same-aged peer models using self-instructional techniques to affect target behaviours. For adult modelling, a five-step process was followed. This started with children viewing adults performing a target behaviour (e.g. raising a hand to speak) as they talked out loud about the behaviour (e.g. 'If I scream out the answer, others will be disturbed. I will raise my hand and wait my turn. Good for me – see, I can wait!'). The children repeated this process, firstly under the adult model's instruction and then on their own in three successive steps until they could guide themselves in performing using inner speech. Peer models were viewed on videotape to illustrate how self-instruction can aid the performance of behaviours in a typical classroom scenario. The participants *practised* self-instruction through role-play (e.g. classroom scenes to practise self-instruction to guide behaviour), pencil and paper tasks (e.g. writing examples of self-instruction) and art activities (e.g. drawing themselves engaged in self-instruction). For the final component, *cue cards* were introduced as prompts to remind students of the self-instruction they had been taught. The author of the study delivered the training in vacant classrooms. The control group did similar activities, but these did not involve self-instruction. For example, they saw good behaviour being modelled, practised good behaviour and had cue cards but were not taught self-instruction to help them perform the target behaviours. The target behaviours were presented as 'external directives' or 'classroom rules' that they must follow.

To evaluate this intervention, 55 children were randomly allocated to an intervention or a control group. The evaluation found that compared with the control group, participants in the intervention group showed significant improvements in classroom behaviour (as rated by both teachers and independent observers who were blind to allocation group) and became more internal in their locus-of-control beliefs. On average, effect sizes ranged from moderate (around 0.5) to substantial (around 0.8). Effects were also sustained at a three-month follow-up.

Shepp and Jensen (1983) compared the effects of behavioural only and cognitive behavioural strategies with a seven-year-old hyperactive boy with moderate learning difficulties in the US. The child was subject to three interventions in sequence. Firstly, the child was rewarded with one minute of time to use as he wanted if he was on task when observed by the teacher; he would lose one minute if not on task. Secondly, he was taught a self-instruction sequence to help keep himself on task. This was modelled by the teacher, memorised by the child, gradually faded to one-word cues and faded to silent repetition after three two-hour training sessions. Thirdly, the first and second techniques were used in combination.

The results of the evaluation showed an increase in time on-task during the behavioural intervention and a reversal to baseline after this intervention. During the cognitive intervention, time on-task fell below baseline, but increased to around the levels of the behavioural intervention when the combined strategy was used. The authors concluded that the behavioural strategy was the most effective strategy for this child. Reviewers agreed but noted problems with generalising these results beyond this one case.

In summary, based on one rigorous study conducted in the US with a sample of 55 children aged seven to nine who exhibit off-task behaviour there is evidence that ***a relatively short cognitive behavioural programme delivered outside the classroom by a researcher to train children in self-instruction can reduce behaviour which is disruptive to their own or others' learning when they return to the mainstream classroom.*** This study also demonstrates that these ***reductions can be sustained over time.***

5.2.2 Insights from other studies and other unanswered questions

There were three other studies which were not judged to be sound. These offer further examples of how interventions underpinned by cognitive behavioural models can be delivered in the classroom. They are interesting because, unlike Manning (1988) discussed above, the interventions in these studies were delivered by the children's regular classroom teachers. They do not, however, allow us to conclude anything about the effectiveness of these for reducing off-task or disruptive behaviour.

A study of ***responsive instruction*** in a kindergarten in the Netherlands was carried out by **Casteljins (1996)**. This type of intervention is a method of engaging children who demonstrate a lack of initiative in learning, playing, and exploring new situations and materials. Teachers are trained to (a) show that they are available to give affective support; (b) take the child's perspective; (c) support the child's competence; and (d) challenge the child to take an active role. In this study, teachers were trained to offer responsive instruction and asked to identify children whom they thought were the most distractible. The

researchers chose two of these children for each teacher. The teachers were asked to implement the intervention with one child. Interim results are presented only for two children (an experimental subject and his control), and it was not possible to track down the full report for this review. The author suggests that the interim results show a strong positive relationship between responsive instruction and attention for work, but that it was not possible at that stage to determine whether this was a causal relationship.

Kamps et al. (1999) report a study involving a package of interventions for 'at risk' students and those identified as having emotional and behavioural disorders. These included behaviour management programmes involving **points / tokens for good behaviour**, systems involving an hierarchy of **consequences for bad behaviour and home-school communication systems; social skills training; and peer tutoring in reading**. The study involved 28 students from three elementary schools in the US (26 boys and two girls), who constituted the intervention group, and 24 students from five elementary schools (21 boys and three girls), who constituted the control group. The control group received the intervention in the year following the implementation with the intervention group. The authors reported that the findings indicated that the prevention programme improved student performance against several key behaviours for the intervention group, as compared with the control group, but that other behaviours showed little or no change. Unfortunately, the control group was exposed to the intervention, for at least some of the time during the experiment; thus the effects of the intervention could not be tested properly. Since both targets and controls were exposed to the intervention for at least some of the time, differences in effects were attributed to the length and intensity of exposure, but this hypothesis was not tested. The authors argue that multi-level interventions of this kind are necessary for students with serious behavioural problems, but note that they have not been able to disaggregate the effects of the different components of the intervention.

Like Shepp and Jenson (1983) discussed above, **Blackwood (1971)** compared the effectiveness of a behavioural intervention and cognitive behavioural intervention. Two groups of children in the US, identified by their teachers as showing habitual disruptive behaviours took part in the study. There were a total of 33 children and 13 teachers involved in the intervention. Both groups of children were exposed to a behavioural intervention which consisted of positive reinforcement of appropriate behaviour and ignoring bad behaviour. One group was additionally required to **learn how to recognise bad behaviour and the consequences of it** through copying out an essay which described bad behaviour and its consequences, whilst the other group was given a 'punishment essay', the content of which had nothing to do with behaviour. The authors concluded that there were no significant differences between the target and control groups in the extent to which their behaviour improved and that the cognitive component of the intervention was thus not effective. However, the evaluation was not judged by the reviewers to be sound, since there was a high degree of dropout from the study and this is likely to have biased the results. Thus no clear conclusions can be drawn from the study.

In summary, because all of the above strategies have not yet been evaluated rigorously, **it is currently unknown whether responsive instruction, packages of behaviour management programmes or teaching children how to recognise 'bad' behaviour and the consequences of it are effective strategies for reducing off-task or disruptive behaviour in the classroom.**

As there were no sound studies which evaluated strategies based on cognitive-behavioural models which were delivered by regular classroom teachers, ***although classroom teachers can deliver strategies based on cognitive behavioural models, it is currently unknown whether these will be effective.***

As there were no sound studies which compared the relative effectiveness of strategies based on behavioural models and cognitive behavioural models, ***it is currently unknown whether cognitive behavioural strategies are superior to behavioural strategies or vice versa for reducing off-task or disruptive behaviour.***

5.3 Are strategies based on cognitive behavioural models effective for reducing aggression or addressing social difficulties?

5.3.1 What do the sound studies tell us?

Four sound studies evaluated the effectiveness of this type of intervention for dealing with aggressive behaviour or difficulties with social interactions (Fowler *et al.* 1986; Lochman *et al.*, 1987; Omizo *et al.*, 1988; Sawyer and MacMullin, 1997). Interventions to target these types of behaviours may be relevant to tackling disruptive behaviours in the classroom too.

As Omizo *et al.* (1988) argue, disruptive behaviours which are caused by children feeling angry or frustrated are best tackled by addressing the root cause of the problem – the angry feelings or lack of social skills – rather than by tackling the disruptive behaviour directly by punishment or counselling. All four studies demonstrated positive effects immediately after the intervention. However, none showed any longer term effects when these were assessed.

Omizo *et al.* (1988) reported an evaluation of the implementation of a ***group counselling programme designed to help children cope with their feelings of anger and frustration.*** The intervention was implemented with 14 boys and 10 girls aged nine to 12 in the US who had been selected randomly from a pool of 47 children nominated by their teachers as behaving in an aggressive and hostile manner. The intervention had three phases and was delivered by a trained counsellor over 10 sessions. Phase 1 was to help the children develop an understanding of anger and to differentiate its positive and negative aspects. Phase 2 focused on incidents that had precipitated angry feelings in the children in the past and discussed their reactions to them. Phase 3 provided opportunities for the children to practise appropriate behaviours when they felt angry. This was accomplished by modelling, role-playing and giving feedback.

This intervention was evaluated by randomly allocating the 24 selected children to either receive the intervention (n=12) or to a control group (n=12). The results showed a significant decline in teachers' ratings of aggression and hostile isolation in the children who had been randomly assigned to the experimental group, compared with the control group. However, the measurement of aggressive behaviour occurred very soon after the end of the sessions and there was no further testing to see if, as predicted, these gains would be maintained over the longer term.

Lochman *et al.* (1987) evaluated a similar 18-week **anger-coping intervention** for boys aged 11-years-old in the US identified by their teachers as the most disruptive and aggressive, delivered by the authors. In this study, however, a teacher training element was included, so that the children's regular classroom teachers would be more aware of the training the children had received and more able to cope with them in the classroom. The study assigned 32 children randomly to one of three groups: one which received the intervention alone (n=11), one which received the intervention with the teacher consultation element (n=13), and a control group (n=8). The results showed that gains in behaviour were made by both the intervention groups compared with the control group, but that the teacher consultation element did not enhance intervention effects significantly. It was unclear from the study report whether these effects were observed immediately following the intervention or in the longer term.

The intervention evaluated by **Sawyer and MacMullin (1997)** focused on developing social skills amongst eight- and nine-year-old children in Australia. The intervention evaluated here also differed from the three described above as it was delivered by the children's regular classroom teachers. Two primary schools matched on socio-economic status were assigned non-randomly to the intervention or the control group. A **social skills programme** was taught to all year 3 and 4 pupils in the target school over a 20-week period in terms two and three of the school year. The programme aimed to provide children with the skills for recognising feelings in themselves and others; being aware of, and sensitive to, interpersonal problems; generating alternative solutions to such problems; understanding the consequences of their actions; and, understanding the reciprocal effects between their feelings and the behaviour of others. The children were taught to apply these steps in dealing with common peer difficulties such as teasing, unwanted interference, aggressive acts and arguments concerning play.

The evaluation showed that the intervention was effective for increasing the children's skills in managing problematic social situations immediately after delivery of the intervention, but there was no evidence that it was effective for maintaining more positive social relationships at a one-year follow-up. Levels of childhood emotional problems were reported to be similar in the two schools and declined over time at a similar rate, so there is no evidence that the intervention had an impact on these problems. This study does not contain evidence that gains in social skills as a result of this programme were maintained over time.

The intervention evaluated by Fowler *et al.* (1986) also involved social skills training, but its main strategy was **role reversal**. The premise upon which the intervention was based was that the appointment of disruptive children to monitor the behaviour of their peers and to give rewards for good behaviour and sanctions for bad behaviour would improve the problem behaviour of those chosen to be monitors. The intervention aimed to improve the playground behaviour of three seven-year-old boys in an elementary school in the US. These boys were enrolled in a mainstream class but were receiving specialised support for learning problems.

The intervention consisted firstly of 30 minutes of individual training for the three boys in peer monitoring by the programme consultant. The training focused on the identification of appropriate and inappropriate playground

behaviour, opportunities for point awards and reasons for point fines. The boys also rehearsed point-awarding and point-fining procedures. The whole class also received social skills training before the first sessions in which the three boys acted as peer monitors.

This intervention was evaluated using a reversal design in which the intervention was introduced, withdrawn, re-introduced and withdrawn again over 11 weeks. For each of the three children, there was an immediate drop in negative interactions during the peer monitoring phase and a reversal to baseline when this phase ended. The reduction in negative interactions did not generalise from midday to morning or afternoon breaks during the peer monitoring phase. All three children showed a reduction in negative interactions at morning break when peer monitoring was introduced during that break.

This study shows that using children with problem behaviour to monitor the behaviour of others in the playground and to give appropriate rewards and sanctions has a positive effect on those involved. It also indicates that wider learning about appropriate behaviour did not take place under these conditions, since in situations where the role-reversal did not take place, negative interactions continued.

In summary, based on two rigorous studies conducted in the US with aggressive boys and girls aged between nine and 12, there is evidence that ***multi-session interventions delivered by specialised personnel to help children cope with anger can produce short-term reductions in aggressive behaviour.***

Based on one rigorous study conducted in Australia with children aged nine to 12, ***there is evidence that a multi-session social skills programme delivered by regular classroom teachers can produce short-term positive effects on social skills, but such effects have not been shown to be maintained in the long term. It has not been demonstrated that this type of intervention can show any reduction in the incidence of childhood emotional problems.***

One rigorous study conducted in the US with three seven-year-old boys demonstrated that ***giving seven-year-old boys (receiving specialised learning support) the responsibility of monitoring the behaviour of their peers in the playground can reduce their own disruptive behaviour.*** However, it is not yet clear whether such results would be achieved within a larger sample.

5.3.2 Insights from other studies and other unanswered questions

There were five other studies which were not judged to be sound. These offer additional examples of how interventions underpinned by cognitive behavioural models can be delivered for targeting aggressive behaviour and socially inadequacy. The types of interventions covered here have very similar components to those evaluated in the sound studies, but tend to be more focused on developing social skills and increasing children's social acceptability amongst their peers and/or friendships than on developing skills for coping with anger. They do not, however, allow us to conclude anything about the effectiveness of these.

Flem et al. (1998) reported a pilot study of a social skills intervention with six six-year-old children in a kindergarten in Norway. The skills targeted were supporting, co-operating and establishing social contacts with other children. In addition, participating, reducing aggression and, handling conflict situations were taught. The intervention was delivered by the teachers and three of the researchers. A hand puppet was used to introduce the skills to the children. Next, they were given opportunities to practise the skills in a small group. Finally, the children were taught to evaluate their behaviour to see whether they had succeeded in performing the target skills. The authors reported that the children's performance of the targeted skills had improved, but that sociometric assessment indicated that their acceptability to other children had not changed. The authors also noted the limitations of the study, which involved small numbers of children and did not use a control group.

Jordan and Le Metais (1997) evaluated a similar type of programme with 10- to 12-year-olds in Australia. This was a 10-week programme, delivered by classroom teachers, which consisted of three phases. In the first phase, the children were encouraged to think about and discuss qualities which make people acceptable as friends and to nominate those with whom they would wish to be friends. In the second phase, the children were given tasks to perform in randomly selected pairs which focused on similarities and differences between them and others in the class. The third phase required the students to achieve tasks as a co-operative group and to practise identified social skills so as to raise individuals' self-esteem. These were inclusion (securing the participation of all members); valuing others' ideas and opinions; persuasion and consensus; and conflict resolution and mediation. The author tracked the behaviour of six students in particular, chosen because they exemplified a range of social and academic abilities, and reported that the social skills of the six had been enhanced over the time of the project, whilst acknowledging the limitations of the evaluation, which was purely at a descriptive level. The study was judged by the reviewers not to be sound, as it did not use a control group, thus it was not clear whether changes in behaviour were due to the intervention or to some other factors.

Lochman et al. (1993) reported on an experiment in which a sample of 52 aggressive rejected and non-aggressive rejected children were assigned randomly to receive a social relations intervention or to be in a non-intervention control group. The intervention was made up of four components: social problem-solving; positive play training; group-entry skill training; and, dealing effectively with strong negative feelings. The authors reported that the intervention appeared to be effective with aggressive rejected children, both immediately after the intervention and at a one-year follow-up, but that it was not effective for non-aggressive rejected children. They suggested that the cognitive-behavioural component of the strategy and the specific targeting of aggressive behaviours were the key factors in the success of the intervention. The same social skills training did not appear to have a significant beneficial effect for the non-aggressive rejected group. However, the evaluation of this intervention was not judged to be sound, as there was a high level of attrition among the groups (thus the most aggressive students may have left the study, biasing the results) and no baseline measures were reported to check whether those who stayed in the study were similar.

The two final studies included in this section were problematic in that they used a reversal design to evaluate interventions intended to bring about cognitive

behavioural change. Reversal designs are not suitable for evaluating long-term behavioural change, since they demonstrate validity by relying on the premise that behaviour will revert towards baseline once an intervention is withdrawn. Thus they cannot demonstrate whether long-term change has taken place, since, if it has, behaviour will not revert to baseline and thus no valid controls are available.

A study by **Court et al. (1995)** evaluated an intervention designed to improve social skills in order to reduce physically and verbally aggressive behaviour in elementary school students in the second, third and sixth grades in the US (7-, 8- and 11-year-olds). It was unclear who the intervention was delivered by, but it consisted of instruction in co-operative problem-solving; instruction in conflict resolution; and cross-age mentoring. Evaluated by a reversal design, the authors concluded that, while the intervention appeared to improve the behaviour of some students, those with more severe learning and behaviour problems or with family problems were less responsive to the programme. The evaluation of the intervention was not judged to be sound because the report is not clear about the numbers of students recruited from each class or the rate of attrition. The analysis was carried out at the level of the class, but explanations were given at the level of individuals and are not substantiated by the data presented.

The teaching and practice of pro-social behaviours was the focus of an intervention with six students, nominated by their teachers because they exhibited inadequate or inappropriate social behaviours in an elementary school in the US. The programme was evaluated and delivered by Brownsmith (1976). All six students were asked to discuss conflict situations that happened in class. Three children chosen as the controls were then taken out of the class and listened to tape recordings of old radio shows. The other three children listened to taped simulated classroom situations showing problematic behaviour or conflict. These children were then asked what they should do next and to rehearse their response. When they demonstrated the required behaviour, they were praised and asked to practise this in the classroom before the next session. Two sessions per week for four weeks were given. Two students were started on the programme one week later than the other four, in order to provide a time-lagged control. However, no comparison data were presented for intervention and control groups, and since, eventually, all the children were exposed to the intervention, it cannot be demonstrated that changes in behaviour were due to the intervention.

The approach was based on experience with adults in clinical settings (for example, assertiveness training). However, it was found that the approach did not transfer easily to the school setting, for several reasons:

- Not all children were seeking to change their behaviour as they had been nominated by their teachers rather than being self-nominated.
- Children were not always available for sessions because they were absent from school.
- Children sometimes came to the sessions in a negative frame of mind because they had just been punished.
- The technique could not be used in the classroom; it required the child to be taken out of the classroom for sessions.

In summary, the above studies contribute to our knowledge of how interventions to foster the development of social skills to support children with problems in initiating and maintaining positive peer relationships might be

operationalised. However, because these studies were not judged to be methodologically sound, they represent a lost opportunity to build up a more detailed picture of the conditions under which this type of intervention might be more or less effective: for example, are they effective for all children or within all types of education system?

In addition, the study by Brownsmith (1976) flags up issues of what the children themselves want or need. Listening to children and creating opportunities for their views to feed into the kinds of interventions which are developed and implemented has largely been ignored within the pool of studies identified for this review.

5.4 Are strategies based on a systemic model effective for reducing off-task behaviour?

5.4.1 What do the sound studies tell us?

Only one sound study evaluated a strategy based on a systemic model. Hastings and Schweiso (1995 {study 1}) evaluated the effects of classroom layout on time 'on-task' with children aged nine to 11 in two classrooms in the UK. Hastings and Schweiso argue that, although the majority of tasks children are asked to do in the classroom are individual, the practice of teachers is generally to have children sitting in groups around tables, rather than in rows. They suggest that time on-task will be increased if children sit in rows rather than in groups around tables. Previous research in this area has been flawed because a simple ABA reversal design does not take account of the 'novelty effect': that is, that changing the layout of itself is the significant factor, not the layout per se.

To overcome this, a school which initially used *neither rows nor* groups, but some other formation was studied. The classes involved were two parallel mixed classes in a junior school in an English county. Both classes were normally arranged in a maze formation. One class was seated in rows, then in groups and then back into rows. The second class was seated in groups, then in rows and then back into groups. Each arrangement lasted for two weeks.

For both classes, the time on-task when in rows was higher than when in groups. There is no comparison made with the pre-experimental condition, as no baseline measurements were taken. However, it is clear that the change from rows to groups led to a decrease in time on-task during the experiment. As the new arrangements were not maintained over a long period, it was not clear whether this effect would wear off over time. Sub-groups within the class were also examined. Children who were in the low quartile for being on-task in the groups arrangement made the biggest gains in time on-task in the rows arrangement. The authors suggest that their data imply that easily distracted children will spend more time on-task if seated in rows. This has implications for the management of off-task behaviour in mainstream classrooms. ***There is evidence from one rigorous study carried out in the UK that changes in the seating arrangements in classrooms from groups to rows has an impact on time on-task and that this impact is most marked for the most easily distracted pupils.***

5.4.2 Insights from other studies and other unanswered questions

Three other studies evaluated interventions based on a systemic strategy.

The first of these was a second study by **Hastings and Schwieso (1995 {study 2})**. In this study, the behaviour of three boys in particular was targeted. The on-task behaviour of the whole class was monitored for six sessions at baseline and a further six sessions during the intervention phase. The behaviour of the three boys was rated individually. The baseline mean time on task for the whole class was 48 percent. During the intervention phase, this rose to 78.5 percent. The effects on on-task behaviour of the three target boys was more pronounced. This rose from 16 percent to 91 percent.

The lack of a reversal phase for this study leaves the findings ambiguous. Although there was a clear effect of the change in seating arrangements in the first study described in the last section, and the effect seems to be most marked for pupils who are more often off-task, it has not been demonstrated unequivocally in this second study that it is the seating pattern which has brought about the change in behaviour. However, these studies together raise some interesting questions about the mismatch between the tasks set for children and the environment in which they are expected to carry them out, which may have implications for behaviour management.

The second study reported by **Kelly (1999)** evaluated the use of 'circle time' in a Scottish primary school to raise the self-esteem of children in Primary 6 and Primary 7 classes (10- and 11-year-olds). 'Circle time' is an approach widely used in schools for dealing with personal and interpersonal issues. Low self-esteem was judged to lead to behaviours grouped under three main headings: lack of control, hostility and emotional withdrawal. Teachers rated the children on these behaviours and identified nine children in Primary 7 and eleven in Primary 6 who displayed these behaviours 'often'. Two target groups were established: Group A, which was an extracted 'circle time' group involving targeted children only and Group B, a class-based group of targeted children who took part in 'circle time' as part of a whole-class exercise. Detailed results for these children are not presented, but it was reported that both targeted groups showed improvement. The author reported that the class from which Group A was extracted described feeling left out and that, in the following year, a whole class approach was used.

The final study included in the review (**Nelson, 1996**) evaluated a strategy using two elementary schools in the US serving large numbers of disadvantaged students. The schools were studied over two years. The study involved interventions at three levels: school-wide organisational practices; school-wide classroom management intervention; and individual behavioural interventions. Although the intervention package was systemic, the underpinning interventions were based on systemic (ecological), cognitive-behavioural, and behavioural models. Examples of school-wide practices were (a) ecological arrangements of the common areas of the school (hallways, cafeteria, toilets and playground); (b) the establishment of clear and consistent behavioural guidelines or expectations for common area routines; (c) supervision of common area routines to prevent disruptive behaviour from occurring and to respond effectively when it did occur; and (d) the creation of effective disciplinary responses with which to respond to disruptive behaviour in

a timely and effective manner. The school-wide classroom management intervention adopted, 'Think Time', was a cognitive-behavioural time-out designed to (a) deliver a negative consequence when a student engaged in disruptive behaviour; (b) provide the student with feedback and planning for subsequent performance; and (c) enable the teacher and the student to cut off a negative social exchange and initiate a positive one. For individual behavioural interventions, a functional analysis would be undertaken to enable the teacher to design an intervention targeted at the function of the behaviour for that student.

The programme was evaluated by means of a trial. Data were collected from the two schools and two matched schools that acted as controls. Data were collected on school climate (measured by exclusions, suspensions and emergency removals); on teacher stress and perceived ability to work with problem behaviour; and on two groups of students in the target schools – one identified as having behaviour problems and one without such problems. Unfortunately for the purposes of evaluating the effectiveness of the intervention for individual students with EBD, data were not collected on matched students in the control schools.

Data presented at the school level indicated that, in the experimental schools, there was a significant reduction in expulsions, suspensions and emergency removals compared with the control schools. Levels of teacher stress were similar between experimental and control schools at pre- and post-test, but teachers' perceptions of their ability to deal with problem behaviour were more positive at post-test in the experimental schools. Comparative data on students across experimental and control schools were not presented, but data indicating improvements in the behaviour of problem students to nearer the norms presented by non-problem students were presented as evidence of the efficacy of the intervention. However, lack of comparative outcome data for students from the control school means that the study cannot be judged to be sound and thus the effectiveness of the intervention has not been demonstrated.

5.5 What factors relate to successful implementation?

Seven studies included a process evaluation which attempted to describe the processes which either helped or hindered the implementation of the strategy. These included the views of children about the acceptability and usefulness of the intervention; the involvement of teachers in the design, implementation and evaluation of the intervention; the negative effects of classroom processes and routines on the implementation of the intervention; the positive effects on implementation of teamwork among teachers; views of the evaluators on ease of implementation of the intervention by classroom teachers; and views of the implementation providers on the reasons why children did not respond positively to an intervention. None of the studies sought the views of parents.

5.5.1 Children's views

The children involved in the experiment which changed classroom layout (Hastings and Schwieso, 1995 {study 1}), were given a questionnaire about their preferred seating arrangements. The majority (76 percent) reported that

they preferred to sit in groups rather than rows, mainly because it allowed more collaboration and peer support. They also thought they worked harder in groups, a view that was not borne out by the 'time on task' observations made by the evaluators. These responses raise interesting questions about the acceptability of the intervention to the pupils and therefore its long-term impacts on learning. They also raise questions about the mismatch between the ways in which pupils and teachers construe the concept of 'work' in classroom situations and the validity of measuring 'work' and 'learning' using 'time on task' as an indicator.

In the study involving 'social skilling through co-operative learning' (Jordan and Le Metais, 1997), the children were encouraged to reflect on what they had learned, both academically and socially. The teacher also gave feedback on how he felt the process was working. This reinforced the learning and helped to clarify for the students what the intervention was aiming to achieve. There was an information-gathering phase at the start of the intervention, which enabled the children to articulate the social skills needed to work co-operatively. Throughout the implementation phase, the teacher was learning from the children what worked best in terms of improving the acceptability of the intervention; for example, random assignment to pairs and groups was resented and led to non-co-operation. Thus, the process evaluation helped the teacher to tailor the intervention to make it more effective.

The acceptability of an intervention to those to whom it is offered is also discussed by Brownsmith (1976). As described earlier in this chapter, Brownsmith gives a number of reasons why the intervention that she evaluated was not effective. These included the fact that not all the children involved were seeking to change their behaviour as they had been nominated by their teachers rather than self-nominated. Also, children sometimes came to the sessions in a negative frame of mind because they had just been punished.

These findings suggest that seeking the views of children about the acceptability of an intervention may play an important role in securing the effectiveness of the intervention.

5.5.2 Teachers' views

In a large-scale intervention by Nelson (1996), which involved interventions at individual, classroom and school levels, an advisory committee was set up which included teachers, administrators and parent representatives. The role of the committee was to develop plans for improving behaviour that were presented to the whole school staff for approval. These would be discussed by the whole staff and amended in the light of comments. They would be presented again and these steps would be repeated until a consensus was reached. Then a formal proposal together with a staff development plan would be presented for approval. The final step would be the development of an evaluation plan to assess the effects of the programme. Findings from the research indicated that teachers in the experimental schools were more likely to agree that there were shared or agreed-upon goals for working with students with problem behaviour than were teachers in the control schools. Additionally, teachers in these schools were more likely to indicate that they felt capable of dealing with children who exhibited disruptive behaviour.

These findings suggest that involving teachers in the design and evaluation of systemic interventions in schools increases the likelihood

that teachers will feel empowered and confident about the approaches they are using.

5.5.3 Views of intervention providers and evaluators

In the majority of the studies included in this review, the intervention providers were also the evaluators. There were three examples where the provider/evaluator provided a reflection on the implementation of the intervention.

In the study by **Crouch et al. (1985)** of a behavioural intervention to improve behaviour in an art class, the authors reflect that the fact that the programme could be implemented by a newly qualified teacher with no experience in behavioural management meant that it was likely that the intervention would be widely acceptable to teachers as it was simple to implement, time-efficient and effective in changing behaviour. As it was a group-oriented procedure, it also took account of the reservation some teachers have about behavioural interventions that target only one or two students.

Kamps et al. (1999) looked at class-wide interventions to deal with disruptive behaviour. In their discussion about the limitations of their study, they argue that these do not eliminate *all* disruptive behaviour and that more individually-focused interventions based on functional analysis may be needed for some students. They also suggest that interventions are less effective in schools that do not have consistent approaches across the whole school. They conclude that schools where staff members worked as a team with a clear goal of student performance, both academically and socially, greatly increased the probability that changes would occur.

Casteljins (1996) presented data on only one teacher as part of a preliminary report on an intervention study that involved 18 teachers in total. Teachers in the study were trained to give 'responsive feedback' to young children in a nursery school setting in order to motivate distractable children to engage in 'high yield' activities that involve problem-solving. The teachers were offered consultation and feedback during the implementation of the programme, which was designed to help them to reflect on their performance and the reactions of the children. The data on one teacher indicated that she was positive about the programme and had implemented it in part, but that she had left out a key element – that of gaining the child's perspective on the activities involved (i.e. his meta-cognition). Nevertheless, even without this element, Casteljins concludes that 'responsive instruction' led to greater engagement in high yield activities for the one distractable child reported on. Casteljins also reflected that teachers only decide to adopt and implement an innovation if they perceive it as valuable and important to their work and that 'top-down' managed educational innovations are seldom successful.

These findings from process evaluations suggest that the simplicity and acceptability of an intervention to teachers are important issues for the successful implementation of behavioural strategies. In addition, consistent implementation of strategies by teams of teachers have been identified by teachers as important.

6. DISCUSSION

6.1 Summary of principal findings

As we argued in the introduction to this review, there is an increasing concern among practitioners about the levels of EBD amongst children in primary schools. Teachers are looking for effective strategies to support these pupils to remain in mainstream classrooms and to minimise any adverse effects on the experience of other pupils in their classes. The key question for teachers is: What can I do to support pupils with EBD in my classroom? Other school staff, parents and pupils themselves are likely to be interested in the effectiveness of any approaches implemented with the intention of supporting pupils with EBD.

6.1.1 What can be learnt from the current evidence?

We were seeking to identify studies that evaluated strategies that were, or could be, implemented by primary schoolteachers either working on their own or in collaboration with other school staff (e.g. psychologists, SENCOs). This review identified 96 articles and reports that had such strategies as their subject. Whilst there was a wealth of advice given in these regarding strategies that practitioners had implemented and the effects of these on individuals or class groups, the majority of these did not present the findings of research. Only 48 of the 96 reports were reported primary research and, of these, only 28 reported outcome evaluations formally testing the effects of strategies. Only ten outcome evaluations were judged to be methodologically sound and therefore capable of producing reliable estimates of the effects of strategies. One of the first things we have learned, therefore, is that the evidence base in this area is currently limited. Given the limited nature of the evidence base, however, this review was tentatively able to identify key components of strategies which lead to positive changes for children labelled by teachers, psychologists or others as having EBD or difficulties with, for example, aggressive behaviour or social interaction.

The evidence from the review shows that behavioural interventions, based on token systems involving the whole class or group, appear to be effective in the short term for controlling off-task and disruptive behaviour. These have a long history in the prevention of disruptive behaviour in classrooms, but are felt by some practitioners to be too mechanistic and not to address the underlying problems that children bring to the classroom, which may arise out of social or emotional deprivation. It is also the case that a systemic approach, involving changing the layout of the classroom from groups to rows, has a positive effect on time on-task, particularly for more distractible children. But some teachers may feel that children working in groups may learn other valuable skills, such as co-operation and teamwork, which cannot be learned while working individually. We have also learned that social skills can be taught in a variety of ways and that these are effective in the short to medium term (that is, over several months). However, these skills may also develop over time, without direct teaching, in the course of children's maturation, as the study by Sawyer and MacMullin (1997) appears to demonstrate, although these developed at an earlier stage in the intervention group). Psychotherapeutic approaches have yet to be fully evaluated, but may lead to some understandings of the behaviour of

more seriously disturbed children, who may otherwise not be able to be supported in mainstream.

These findings are generally in line with previous systematic reviews with a similar scope to this one. Quinn *et al.* (1999) found a small but significant effect of skills training interventions amongst both children and young people with emotional and behavioural disorders. Mytton *et al.* (2002) also found a small but significant positive effect of school-based interventions to reduce aggressive behaviour amongst children and young people. They also noted greater effectiveness for interventions targeting young people aged 11 or over and for interventions administered to mixed-sex groups rather than to boys alone. Stage and Quiroz (1997) found a larger effect in their review of school-based interventions for reducing disruptive classroom behaviour amongst children and young people in mainstream schools. Their larger effect, however, appears to be the result of the inclusion of some studies that evaluated interventions set in special classrooms within mainstream schools; reducing disruptive behaviour in mainstream classrooms is more challenging.

6.1.2 Unanswered questions and gaps

We do not currently have good evidence about the effectiveness (or otherwise) of 'circle time' or of 'nurture groups', two interventions that appear to be increasingly advocated and adopted by schools. The research into 'nurture groups' by Cooper *et al.* (1999) suggests that the number and national coverage of 'nurture groups' has extended in recent years. Their study, which is on-going, will provide an important contribution to determining the effectiveness of this approach. 'Circle time' is also a strategy adopted increasingly by schools, not always for the purpose of supporting children with EBD, but as part of a wider approach to the teaching of social and communication skills. We found no studies which were able to generate trustworthy findings on the effectiveness of this approach, but the study included in the descriptive mapping stage of our review offers some interesting insights (Kelly, 1999). The more ambitious studies, such as the combined systemic, behavioural and cognitive intervention reported by Nelson (1996), are more complex to evaluate and the impacts of the various strands of the intervention difficult to disentangle.

There was little evidence of a shift away from seeing emotional and behavioural difficulties as problems located *within* individuals (the so-called 'medical model' of EBD) towards a more context-based approach, where behaviour is seen as a response to particular situations in the studies included in our review. There was also little sign within our studies of a greater focus on social justice and equal opportunities in framing the context within which support for pupils is offered. Indeed most studies were not framed in the context of supporting children at all, but were framed in terms of trying to reduce social or behavioural 'deficiencies'. Moreover none of the studies consulted with children with or without the label EBD for their views on possible intervention strategies.

Unlike Mytton *et al.* (2002), we did not detect any patterns in effectiveness according to whether interventions were carried out with mixed-sex groups rather than boys alone. However, our review did reveal that boys are more likely to be represented in these studies than girls; girls were never the sole focus of any study (nine of the 28 studies solely focused on boys) and when studies involved boys and girls, there tended to be greater numbers of the

boys. Interestingly, most of the studies conducted with samples of one or two children involved only boys. It is unclear why this might be so.

6.2 Strengths and limitations of the review

6.2.1 Problems of definition

Defining children with emotional and behaviour difficulties is problematic. Like the reviews by Stage and Quiroz (1997) and Quinn *et al.* (1999), we relied on whether study authors labelled children with emotional and behavioural difficulties or screened children according to their level of a particular behaviour (e.g. disruptive, aggressive). As Quinn *et al.* (1999) note, in the absence of shared methods for assessing children for EBD, it is difficult to be confident that we are comparing studies of similar populations. The variation in the way different studies identified children with EBD also undermines the use of EBD as a coherent and/or useful way of categorising children. Indeed as noted in Chapter 1, teachers have difficulties in distinguishing between EBD and what might be considered 'naughtiness'. As highlighted in the previous section, our review also found support for the findings of other work which has detected that boys are more likely to be labelled with EBD.

6.2.2 Problems of scope

Comparing this review to other systematic reviews with a similar scope to this one reveals strengths, but also significant limitations. All of these differed in their stated scope and aims to this review, but could in practice include the same studies. Quinn *et al.* (1999) examined the effectiveness of a specific type of strategy – social skills training interventions – for improving social skills (e.g. social problem-solving) or reducing problem behaviours (e.g. disruptive behaviour) amongst children and young people with emotional and behavioural disorders. Stage and Quiroz (1997) examined the effectiveness of school-based interventions for reducing one specific outcome – disruptive classroom behaviour – amongst children and young people in mainstream schools. Mytton *et al.* (2002) examined the effectiveness of school-based interventions for reducing aggressive behaviour, school/agency responses to acts of aggression, or violent injuries amongst children and young people who had been identified as 'at-risk' for aggressive behaviour. The strength of our review lies in its explicit attempt to focus on strategies for supporting children with EBD in mainstream schools.

However, comparing the searches used in the Mytton *et al.* (2002) review to the searches we employed pinpoints a potential mismatch, discussed earlier, between the inclusion criteria employed in our review and our search strategies. Many of the studies included in the Mytton *et al.* review would have met our inclusion criteria. However, of the 26 studies which would have been eligible for inclusion in our review, we only identified two with our search strategies because we did not search using specific terms such as 'aggressive behaviour' or 'conduct disorder'. The results of our map should therefore be interpreted in this context. It is likely that our search strategies provided a particular slice of all the potentially relevant literature, bounded by the use of generic search terms such as 'emotional and behavioural difficulties'. The conclusions we draw from our map about relevant research activity may therefore only apply to research studies which have been characterised in this

way by study authors. It may not reflect, for example, research activity which is labelled by study authors as being concerned with 'violence-prevention'.

Even the most sophisticated search strategies will not uncover all relevant studies. Previous research has shown that studies which have demonstrated a large effect are more likely to be published and that publication bias is a particular issue in areas in which many small scale studies have been conducted (Begg, 1994). Bearing in mind the number of small studies in this review, we must recognise that there are likely to be many more which have not been published. Studies which show equivocal results are less likely to be published either because the researchers who conducted them did not attempt to publish their results, or due to the editorial policy of some journals. Indeed, given the overwhelming number of studies in which the authors concluded that the intervention in question was effective – 75 percent – we are left to question whether all interventions in this area have this kind of success rate, or whether a significant number of studies which showed no apparent effect are missing.

6.2.3 Classifying strategies of support

We used a simple taxonomy of intervention strategies: behavioural, cognitive behavioural, systemic and psychotherapeutic. The review by Stage and Quiroz (1997) used a different taxonomy with five categories of intervention strategy: behavioural, cognitive-behavioural, individual counselling, parent training and multi-modal interventions. In a review of the status of intervention research concerned with modifying the behaviours of children and youth with emotional and/or behavioural disorders, Dunlap and Childs (1996) again used a different system and classified interventions as skills training, self-management, antecedent-based interventions, consequence-based intervention or peer-mediated interventions. It is not clear to what extent these categories overlap or whether different reviewers would classify the interventions in the same way using these taxonomies.

The strategies that were evaluated in the studies we identified for this review all fit into one of our four categories of theoretical models. Strategies underpinned by different theoretical approaches may well have been evaluated by studies which we did not identify. There was a bias towards studies published in educational and psychological journals and this may have limited the range of strategies represented by the studies.

Adoption of different theoretical perspectives may reflect strongly held value positions about the ethical and moral issues which underpin this field, in particular about the causes or aetiology of EBD. For example, behavioural approaches to developing strategies for reducing problem behaviour using rewards and sanctions are often characterised by those adopting different theoretical approaches as harbouring a simplistic view of the causes of behaviour. On the other hand, for those adopting cognitive-behavioural and psychotherapeutic approaches, the expectation is that there will be changes within the individual, either through learning new skills and insights, or by having emotional damage 'repaired', so that the individual will be able to behave in a more acceptable or less self-damaging way. As different theoretical perspectives tend to go in and out of fashion, the emphasis put on the role of these different theories in developing effective, appropriate and ethical strategies is something which should be put to empirical test.

Whilst our taxonomy was a useful heuristic device for grouping studies, we do not believe that it is the only way to distinguish between different strategies evaluated in studies or that it is the most useful. Indeed some of the multi-component strategies evaluated in the studies included in our in-depth review could not easily be classified into any one of our four categories as they often contained elements of them all. There are also debates about the boundaries of the different theoretical approaches themselves. A different approach which could be tested in the future should perhaps focus on classifying intervention components, in addition to trying to capture the underlying theoretical underpinnings of the strategy.

It would also be useful in the future to try to capture which studies evaluated strategies which are framed in terms of a social justice or equal opportunities approach. We tried to capture one aspect of this by assessing who was involved in decisions about whether and how to intervene. Although teachers were often involved in these decisions and to a lesser extent parents, children were never involved. This challenges us to think about how children are being viewed and treated in this research. As with many other areas of social research, there has been a long-standing tradition of doing research ‘on’ children rather than ‘with’ children and a reluctance to consider and value children’s views and experience as a valuable resource (Alderson, 2003; James and Prout, 1997; Mayall, 2002). We return to this issue in section 6.4 when considering the implications of the findings for this review for research.

6.2.4 Synthesis methods

A useful addition to this review would be the employment of statistical meta-analysis to pool quantitative effect sizes from the intervention evaluations. A larger pool of studies would be useful in this regard, though it would be possible to calculate effect sizes for the sound studies in this review and this may be attempted as part of future work. Meta-analysis is able to estimate the overall size of an effect from more than one study.

This review was not able to give any indication as to the relative benefits (or otherwise) of different types of interventions. A teacher wishing to select one intervention would want to know which was *most* effective. To do this would require studies to compare different types of strategies with each other, something which very few of our identified studies did.

Another useful addition to this review would be the inclusion of more process data. Whilst we are able to indicate those interventions which have shown evidence of effectiveness, we have not in all cases been able to examine why they might have worked when others did not. Examining issues of implementation and acceptability are crucial to teachers who might be considering using some of the interventions in their classrooms.

6.2.5 User involvement in the review process

We should have involved teachers and other classroom practitioners in setting the parameters for the review and framing the review question. We should have also consulted parents and children. However, we did involve teachers and EBD support staff in peer review of the report before publication and we are grateful for their constructive and helpful comments on the report. Future reviews in this area should involve a wider variety of potential users from the beginning. The impact of these users on the review could then be explored.

6.3 Implications

6.3.1 For policy and practice

Bearing in mind the limitations of the review discussed above, from the studies we identified and included we found that the evidence base for recommending particular strategies that teachers could use to support pupils with emotional and behavioural difficulties in their classrooms was quite limited. Indeed we only found one study from the UK which had been designed in such a way as to produce trustworthy findings about the effects of strategies. However, the following strategies have been shown by at least one rigorous study to be effective.

- **Behavioural strategies using token systems for delivering rewards and sanctions are effective for reducing behaviour which is disruptive to children's own or others learning in the mainstream classroom. Positive effects are immediate and restricted to the period of intervention delivery. Such strategies should attempt to incorporate some element of peer support and pressure.** Based on two rigorous studies with children aged eight- to 10-years old in the US identified as disruptive or identified with emotional and behavioural difficulties.
- **A relatively short cognitive behavioural programme delivered outside the classroom by a researcher to train children in self-instruction can reduce behaviour which is disruptive to their own or others learning when they return to the mainstream classroom. These reductions can be sustained over time.** Based on one rigorous study conducted in the US with a sample of 55 children aged seven- to nine-years-old exhibiting off-task behaviour.
- **Multi-session interventions delivered by specialised personnel to help children cope with anger can produce short-term reductions in aggressive behaviour.** Based on two rigorous studies conducted in the US with aggressive boys and girls aged between nine- and 12-years old.
- **A multi-session social skills programme delivered by regular classroom teachers can produce short-term positive effects on social skills, but such effects have not been shown to be maintained in the long-term. It has not been demonstrated that this type of intervention can show any reduction on the incidence of childhood emotional problems.** Based on one rigorous study conducted in Australia with children aged nine- to 12-years-old.
- **Changes in the seating arrangements in classrooms from groups to rows has an impact on time on-task and that this impact is most marked for the most easily distracted pupils.** Based on evidence from one rigorous study carried out in the UK.

Based on the studies included in this review, it is unclear whether the following strategies are effective:

- **some strategies based on a behavioural model (e.g. assertive discipline, the use of daily report cards or training teachers to use praise);**

- **some types of strategies based on a cognitive behavioural model (e.g. responsive instruction, packages of behaviour management programmes or teaching children how to recognise ‘bad’ behaviour and the consequences of it);**
- **some strategies based on a systemic model (for example, ‘circle time’);**
- **Strategies based on a psycho-therapeutic model, for example, ‘nurture groups’.**

It is also unclear whether some strategies are more effective than others or whether strategies delivered by teachers are more effective than those delivered by other professionals.

- Although studies have demonstrated that classroom teachers can deliver strategies based on cognitive behavioural models, **it is currently unknown whether these will be more or less effective than those delivered by other professionals.**
- **It is currently unknown whether cognitive behavioural strategies are superior to behavioural strategies or vice versa for reducing off-task or disruptive behaviour.**

6.3.2 For research

There appears to be a lot of activity by teachers and others, for example, educational psychologists, in developing strategies to support children with EBD. However, much of this work is not currently subjected to rigorous evaluation of its effectiveness. Thus, there are opportunities for teachers to collaborate with educational psychologists and with researchers working in this area, to design and implement sound research to evaluate interventions. Given this lack of clarity about the effectiveness of a number of widely-used strategies:

- **We recommend that practitioners and researchers work in partnership to carry out rigorous studies of the strategies currently used. Such partnerships need actively to include children and their parents.**

Interventions need to be evaluated by well-designed experiments that involve the use of a control group, using random assignment when possible. In the absence of such evidence, it is not possible to make clear statements about the effectiveness of the interventions. Much of the research we looked at was not able to provide clear evidence of effects because of faults in the design or in the presentation of results, as described in the previous chapter.

Interventions are never easy to evaluate. Interventions which are delivered to groups of children rather than individuals and include a range of components at individual, classroom and schools levels pose considerable challenges. In particular, they require the incorporation of the group or cluster element into evaluation design (e.g. allocation by cluster rather than individual) which must be followed through into the analysis. Teasing out the effects of multi-component interventions also requires the collection of detailed process data to help interpret quantitative information on the effects of interventions.

Some of the studies we reviewed did not use a research design that was appropriate to the outcomes that were expected from the intervention. Reversal designs, which rely on demonstrating a reversal of any effect of an intervention towards baseline measures when the intervention is withdrawn, can only demonstrate effects when an intervention is in place (e.g. rewards and sanctions). They may not be suitable for evaluating the effects of strategies which are expected to result in changes beyond the period in which the intervention is in place (e.g. strategies which teach skills).

- **We recommend that reversal designs are only used to evaluate interventions which are expected to produce change when an intervention is in place (e.g. those based on a behavioural model).**

For interventions which are seeking changes to be maintained when an intervention has stopped, **we recommend that study designs involve:**

- **more than one group so that one group receiving the intervention under evaluation can be compared to a group not receiving the intervention;**
- **where possible, random allocation of children or classes or schools to intervention and non-intervention groups;**
- **careful attention, when random allocation is not possible, to obtaining groups that are matched on socio-demographic characteristics and levels of behaviour difficulty;**
- **more effort to obtain measures of outcome over the long term when appropriate; this will depend on the aims of the intervention.**

For the evaluation of any type of strategy we recommend that:

- **more attention is paid to using sample sizes large enough to ensure that studies have sufficient statistical power to detect the effects of classroom strategies.**

More attention needs to be paid reasons why strategies work (or do not work).

- **We recommend that process evaluations be undertaken to ascertain the views of participants (e.g. children, teachers) about the strategies used.**

Consideration should also be given to ethical issues in conducting research 'with' rather than 'on' children. The studies reviewed in this report were found to have conducted research 'on' rather than 'with' children. For example, children were rarely asked for their consent to participate, although some studies did seek parental consent; neither were their views about the intervention sought in the vast majority of cases.

We recommend the following:

- **Children should be respected and valued in the same way as any other social group participating in research. Their views and**

experiences should be considered as a valuable resource for the development of interventions.

- **Children, parents and other stakeholders should be involved in planning the evaluation of interventions.** Their views will be valuable in determining relevant and appropriate data-collection methods, tools and topics, and in determining outcomes to be measured.

Currently, the results of much activity at local level are not reported adequately, so it is not possible to tell whether any evaluation has been carried out using a sound research methodology. Reports of evaluations should be explicit about the aims, methods and findings of the research, using the criteria for soundness described in this review. Unless research reports are clear about these issues, it is not possible to judge whether a particular intervention is effective or not.

It is impossible to assess the reliability of the results of evaluation studies unless there is a clear description of the methods used for the evaluation.

- **We recommend that full details of research methodology be given in research reports. Publications should also make this information available, either in the published paper, or as a technical appendix available from the authors.**

6.4 Issues arising from the use of systematic review methods

The systematic review aims to bring all available evidence together in the same place to be used by people in and outside academia. Its underlying philosophy is that research should be used for practical purposes, both inside the classroom and to inform policy-making, as well as to aid future research. This approach benefits the research community by showing that its work can change people's lives and by demonstrating to funders that research can have immediate practical purpose. Reviews can also help to bridge the divide between researchers, practitioners, and the public (e.g. parents and students) by making available practical suggestions for practise which have been shown to be useful in similar situations. The methodology used to conduct the review merits some reflection in order to draw out useful lessons for systematic reviews in the future.

Identifying studies

The major sources used for searching for studies for this review consisted of several electronic databases in order to ensure comprehensiveness. We tried to search all major databases which index educational research (e.g. ERIC; PsycLIT). However, we identified several problems in trying to undertake exhaustive searches on these databases:

- There can be a long time lag between when a study is completed and when it appears on the system.
- Each database contains restrictions on what is allowed to enter the system, based both on the topic, and also on the type of literature. All the databases we use cover journal articles, but very few cover books or book chapters.

- There is no guarantee of the comprehensiveness within the topic; one estimate states that 40 percent of material that should be listed on MEDLINE can, in reality, be accessed only by looking through all the journals again, by hand. Indeed, some important and relevant journals may not be covered by the databases at all.
- Entry of articles on to databases is open to indexer error in their selection of keywords for indexing.
- Some databases only give the citation, some an abstract and very few full text. They also vary greatly in their coverage of both published and unpublished grey literature.
- Not all databases use a thesaurus (that is, a list of controlled vocabulary used to standardise search terms). PsycLIT has the most sophisticated thesaurus which is arranged hierarchically, allowing searching for more general or specific terms, as well as for synonyms and related terms. ERIC has a list of terms without any subheadings, and International ERIC does not, as yet, have a thesaurus.
- Terms in common usage can be difficult to find, and existing controlled vocabularies may not reflect the latest concepts in a particular field.
- Owing to the different levels of database sophistication, the same search terms cannot be used consistently.

Databases that serve education need to be developed in similar ways to those found in medical and health care research. MEDLINE is the major medical database and it has highly sophisticated searching strategies, allowing the insertion of quality strings or evidence-based quality filters (EBQFs) into the searching strategy. These are designed to limit searches in various ways, either by type of intervention or type of publication.

Our handsearching of key journals helped to overcome limitations in database searching. We supplemented our database searches with handsearches of 26 key journals. This is an extremely time-consuming exercise, but it did identify a further six studies, some of which were more research-based than those found in the original searches. The use of handsearching and the scanning of bibliographies and reference lists has enabled the review to benefit from using some research which is more difficult to find due to the way in which it is categorised on electronic databases.

Conceptual frameworks and systematic reviews

When reading some literature reviews or conceptual works, it is not always clear how concepts are being defined or why particular theoretical frameworks were selected and what evidence there is to support their selection. Systematic reviews have also been criticised in the past as being atheoretical and for not valuing previous conceptual work which has been done in the field in question. By using the theoretical frameworks which the studies employed, this review demonstrates one way in which theory and empirical evidence may be brought together, mapping the available evidence to its associated theoretical base.

However, as highlighted in section 6.2, our review was not without its problems with respect to its conceptual framework. Undertaking this review has deepened our appreciation of the importance of a clearly articulated conceptual framework. Trying to be explicit about definitions of EBD and intervention strategies was difficult. Our understandings were often only clarified amongst the review team as we progressed through the review. The peer refereeing process highlighted how our review team were working with a number of

assumptions which were not shared by others. This underlines the importance of involving different groups of people who are likely to have different (or even competing) understandings in order to clarify concepts and questions and the very beginning of the review process.

Resource implications

The review was a collaborative effort by researchers and librarians at NFER and the EPPI-Centre. Each institution has contributed considerable resources, over and above the original budget agreed for the review. Systematic reviewing requires intensive input of both librarian and researcher time. Each study is independently reviewed and data extracted by two researchers and then each review is compared to discuss and resolve differences in assessment of the study. Only then can the findings and their implications for policy and practice be assessed.

The original timeframe for the review was six to nine months, but this was unrealistic, given the pre-existing workloads of those engaged in it and the amount of work involved in undertaking a review of this kind. In the event, the review has taken over three years to complete and will now need to be updated to include studies published from 2000 onwards. However, the explicitness of the methodology for the review means that updating will be a relatively straightforward exercise. A complementary piece of work to this review has recently been completed which has examined research on strategy effectiveness in the same topic area for the period 2000 to 2002 within the context of initial teacher education (Harden *et al.*, 2003).

Systematic reviews of this type need to be costed realistically and given the status and time currently allocated to primary research.

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APPENDIX A: Search strategy

KEYWORDS

Emotional and Behavioural Difficulties

Emotional Problems
Behaviour Problems
Behaviour Disorders
Behaviour Management
Problem Children
Disturbed Children
Troubled Children
Maladjustment
Disruptive Pupils

Classroom strategies/ specific interventions

Classroom Strategies
Classroom Techniques
Classroom Methods
Teaching Methods
Teaching Strategies
Classroom Management

Nurture Groups
Circle Time
Assertive Discipline
Solution Focused Brief Therapy

Checklist of data sources

Primary sources

- **ASSIA** social sciences
- * • **Australian Education Index** education (Australian)
- **BLAISE Web** SIGLE, BNB and CONF
- * • **British Education Index** education (British)
- * • **Canadian Education Index** education (Canadian)
- **ChildData** education, health and welfare of young people
- **C2-SPECTR**
- **Cochrane Library**
- **ERIC** education (mostly USA)
- **Library's Internal Databases** catalogue, Current Educational Research in the UK, ProCite
- **Internet**
- **PsycLIT** psychology
- **Social Science Citation Index**

* Originally searched on International ERIC

Secondary sources

- Secondary references
- Handsearching
- Grey literature
- Conference proceedings
- Research registers
- Other sources known to experts

EXAMPLE OF SOURCES OF STUDIES

INTERVENTIONS IN MAINSTREAM PRIMARY SCHOOL CLASSROOMS FOR PUPILS WITH EBD			
<i>Electronic databases</i>	<i>Journals handsearched</i>	<i>Organisations contacted</i>	<i>Individuals contacted</i>
ASSIA	Emotional and Behavioural Difficulties Journal of Applied Behaviour Analysis Journal of Emotional and Behavioural Disorders	BPS	Prof M Chazan
Australian Education Index (AEI)	British Journal of Special Education British Journal of Special Needs Education Exceptional Children	NASEN	Ms Marian Bennathan
British Education Index (BEI)	Support for Learning International Journal of Inclusive Education	EWCEBD	Dr Gerda Hanco
BLAISE Web (SIGLE, BNB and CONF)	American Educational Research Journal British Educational Research Journal Research in Education		
Canadian Education Index (CEI)	Research Papers in Education Review of Educational Research Cambridge Journal of Education		
ChildData	Journal of Child Psychology and Psychiatry British Journal of Educational Psychology		
C2-SPECTR	Child Psychology and Psychiatry Review Educational Psychology		
Cochrane Library	Learning and Instruction <i>companion to</i> International Journal of Educational Research		
ERIC	Therapeutic Education <i>continues as</i> New Growth		
Library's Internal Databases	Therapeutic Care and Education Theory into Practice		
Internet	Maladjustment and Therapeutic Education <i>continues as</i> Emotional and Behavioural Difficulties		

Support for pupils with emotional and behavioural difficulties (EBD) in mainstream primary school classrooms: a systematic review of the effectiveness of interventions

EXAMPLE OF SOURCES OF STUDIES (cont'd)

INTERVENTIONS IN MAINSTREAM PRIMARY SCHOOL CLASSROOMS FOR PUPILS WITH EBD			
<i>Electronic databases</i>	<i>Journals handsearched</i>	<i>Organisations contacted</i>	<i>Individuals contacted</i>
PsycLit Social Science Citation Index	School Psychology Quarterly Journal of School Psychology Education and Child Psychology		

AUSTRALIAN EDUCATION INDEX (AEI)

AEI is produced by the Australian Council for Educational Research. It is an index to materials at all levels of education and related fields. Source documents include journal articles, monographs, research reports, theses, conference papers, legislation, parliamentary debates and newspaper articles. The database was searched from 1980 to 2000.

(At the time of carrying out our searches, AEI was hosted by the International ERIC database.)

- #1 Emotional Problems
- #2 Behaviour Problems
- #3 Behaviour Disorders
- #4 #1 or #2 or #3
- #5 Pupil Problems (ft)
- #6 Maladjustment (ft)
- #7 Problem Children or Disturbed Children or Troubled Children
- #8 Disruptive Pupils (ft)
- #9 Assertive Discipline (ft)
- #10 Circle Time
- #11 Nurture Groups
- #12 Teaching Methods
- #13 Teaching Strategies (ft)
- #14 Classroom Strategies (ft)
- #15 Classroom Management
- #16 #12 or #13 or #14 or #15
- #17 #4 and #16
- #18 #5 or #6 or #7 or #8 or #9 or #10 or #11
- #19 #18 and #16

BRITISH EDUCATION INDEX (BEI)

The Education-line database was separately searched, although these records are now indexed on BEI.

BEI provides bibliographic references to 350 British and selected European English-language periodicals in the field of education and training, plus developing coverage of national report and conference literature. The database was searched for the period 1986-2000.

(At the time of carrying out our searches, BEI was hosted by the International ERIC database.)

- #1 Emotional Problems
- #2 Behaviour Problems or Behaviour Management
- #3 Behaviour Disorders
- #4 #1 or #2 or #3
- #5 Pupil Problems
- #6 Maladjustment
- #7 Problem Children or Disturbed Children or Troubled Children
- #8 Disruptive Pupils
- #9 Assertive Discipline (ft)
- #10 Circle Time

- #11 Nurture Groups
- #12 Teaching Methods
- #13 Teaching Strategies
- #14 Classroom Strategies (ft)
- #15 Classroom Techniques (ft)
- #16 Classroom Methods (ft)
- #17 Classroom Management
- #18 #12 or #13 or #14 or #15 or #16 or #17
- #19 #4 and #18
- #20 #5 or #6 or #7 or #8 or #9 or #10 or #11
- #21 #20 and #18

CANADIAN EDUCATION INDEX (CEI)

CEI is now part of the Canadian Business and Current Affairs (CBCA) database, although at the time of carrying out our searches it was hosted by the International ERIC database. CBCA provides indexing and fulltext access to the principal educational literature publications in Canada, covering all significant reports of government departments, faculties of education, teachers' associations, large school boards and educational organisations. Over 150 educational periodicals, plus educational articles in over 700 general journals and newspapers are indexed. The database was searched for the period 1980–2000. (In order to ensure comprehensiveness, a second search was carried out using CBCA Fulltext when the database became available.)

- #1 Emotional Problems
- #2 Behaviour Problems
- #3 Behaviour Disorders
- #4 #1 or #2 or #3
- #5 Maladjustment
- #6 Problem Children or Disturbed Children or Troubled Children
- #7 Disruptive Pupils
- #8 Assertive Discipline
- #9 Circle Time
- #10 Nurture Groups
- #11 Teaching Methods
- #12 Teaching Strategies
- #13 Classroom Techniques
- #14 Classroom Management
- #15 #11 or #12 or #13 or #14
- #16 #4 and #15
- #17 #5 or #6 or #7 or #8 or #9 or #10
- #18 #17 and #15

ERIC

ERIC is sponsored by the United States Department of Education and is the largest education database in the world. It indexes over 725 periodicals and currently contains more than 7000,000 records. Coverage includes research documents, journal articles, technical reports, program descriptions and evaluations and curricula material. The database was searched for the period 1983–2000. The term 'classroom techniques' is used for class management,

classroom management and classroom methods. (Solution-focused brief therapy was only used in this particular search.)

- #1 Emotional Problems
- #2 Behavior Problems or Behavior Management
- #3 Behavior Disorders (ft)
- #4 #1 or #2 or #3
- #5 Pupil Problems (ft)
- #6 Maladjustment (ft)
- #7 Problem Children or Disturbed Children or Troubled Children
- #8 Disruptive Pupils (ft)
- #9 Emotional Disturbances
- #10 Assertive Discipline (ft)
- #11 Circle Time (ft)
- #12 Nurture Groups (ft)
- #13 Solution Focused Brief Therapy (ft)
- #14 Classroom Techniques
- #15 #4 and #14
- #16 #5 or #6 or #7 or #8 or #9
- #17 #6 and #14
- #18 #7 and #14
- #19 #10 or #11 or #12 or #13
- #20 #19 and #14

APPENDIX B: Characteristics of all outcome evaluations included in the review

Study	Country	Type of EBD	Theoretical model	Brief details of intervention	Intervention provider	Evaluation design	Characteristics of children
9006 Armstrong <i>et al.</i> (1988)	USA	Disruptive	Behavioural	Teacher praise	School principal	Other	<i>Sample size:</i> not stated <i>Age:</i> 6 to 10 years <i>Sex:</i> not stated <i>Social class:</i> 50% entitled to free school lunch <i>Ethnicity:</i> not stated <i>Other information:</i> none
9048 Blackwood (1971)	USA	Off-task Disruptive	Cognitive behavioural	Positive reinforcement of appropriate behaviour, ignoring bad behaviour; copying out an essay detailing the consequences of bad behaviour.	Teacher	RCT	<i>Sample size:</i> 33 <i>Age:</i> not stated <i>Sex:</i> not stated <i>Social class:</i> described as mainly lower-middle class with some children from poorer areas <i>Ethnicity:</i> described as mainly 'black' <i>Other information:</i> all identified by teachers as showing habitual disruptive behaviours
9047 Brownsmith (1976)	USA	Socially inadequate	Cognitive behavioural	Children taught social skills through discussion of conflict/problem behaviour in class; developing responses to these situations; and practising these responses.	Researcher	Reversal	<i>Sample size:</i> 6 <i>Age:</i> 10 to 13 years <i>Sex:</i> all male <i>Social class:</i> not stated <i>Ethnicity:</i> 3 'white' children and 3 'black' children <i>Other information:</i> all identified by teachers as showing inappropriate or inadequate social behaviours
9012 Broussard and Northup (1997)	USA	Disruptive	Behavioural	Use of tokens to award good behaviour	Psychologist Teacher Peer	Reversal	<i>Sample size:</i> 4 <i>Age:</i> 7 to 9 years <i>Sex:</i> all male <i>Social class:</i> not stated <i>Ethnicity:</i> not stated <i>Other information:</i> all referred to a psychologist for assessment of disruptive behaviour
9013 Bushrod (1995)	Canada	Disruptive Aggressive	Behavioural	Daily report card	Teacher Parent	Reversal	<i>Sample size:</i> 2 <i>Age:</i> 5 years <i>Sex:</i> all male <i>Social class:</i> middle class <i>Ethnicity:</i> not stated <i>Other information:</i> both boys identified by teachers and parents as exhibiting high rates of disruptive

Appendix B: Characteristics of all outcome evaluations included in the review

Study	Country	Type of EBD	Theoretical model	Brief details of intervention	Intervention provider	Evaluation design	Characteristics of children
							and aggressive behaviour
9004 Castelijns (1996)	Holland	Off-task	Cognitive behavioural	'Responsive instruction' to engage children through providing affective support and the challenge to act autonomously	Teacher	Other	<i>Sample size:</i> 2 <i>Age:</i> 6 years <i>Sex:</i> boys and girls <i>Social class:</i> lower and lower middle class <i>Ethnicity:</i> not stated
9046 Court <i>et al.</i> (1995)	USA	Off-task Aggressive	Cognitive behavioural	Instruction in co-operative problem- solving and conflict resolution; cross-age mentoring	Not stated/Unclear	Other	<i>Sample size:</i> not stated <i>Age:</i> 7 to12 years <i>Sex:</i> girls and boys <i>Social class:</i> working class and middle class <i>Ethnicity:</i> schools from which children were drawn were ethnically diverse <i>Other information:</i> 62% from 'non-traditional' families
9014 Crouch <i>et al.</i> (1985)	USA	Off-task Disruptive	Behavioural	Use of tokens to award good behaviour	Teacher	Reversal	<i>Sample size:</i> 22 <i>Age:</i> 8 to 9 years <i>Sex:</i> not stated <i>Social class:</i> not stated <i>Ethnicity:</i> not stated
9002 Davies and McLaughlin (1989)	Canada	Off-task Disruptive	Behavioural	Daily report card	Parent Teacher	Other	<i>Sample size:</i> 3 <i>Age:</i> 6 to 8 years <i>Sex:</i> all male <i>Social class:</i> not stated <i>Ethnicity:</i> not stated <i>Other information:</i> all children assigned to a resource room for behaviour problems
9001 Ferre and Ferre (1991)	USA	Off-task	Behavioural	Assertive discipline	Teacher	Other	<i>Sample size:</i> 1 <i>Age:</i> 5 years <i>Sex:</i> all male <i>Social class:</i> not stated <i>Ethnicity:</i> not stated
9015 Flem <i>et al.</i> (1998)	Norway	Socially inadequate	Cognitive behavioural	Children taught skills in supporting, co-operating and establishing social contacts. Skills were introduced and then practised. Self-evaluations of skills was also taught.	Researcher Teacher	Other	<i>Sample size:</i> 3 <i>Age:</i> 8 years <i>Sex:</i> all male <i>Social class:</i> not stated <i>Ethnicity:</i> not stated <i>Other information:</i> all considered by school staff to be at risk of developing emotional and behavioural difficulties

Appendix B: Characteristics of all outcome evaluations included in the review

Study	Country	Type of EBD	Theoretical model	Brief details of intervention	Intervention provider	Evaluation design	Characteristics of children
9017 Fowler <i>et al.</i> (1986)	USA	Socially inadequate	Cognitive behavioural	Role-reversal in which disruptive children were appointed and trained to monitor the behaviour of their peers	Peer	Reversal	<i>Sample size:</i> 3 <i>Age:</i> 7 years <i>Sex:</i> not stated <i>Social class:</i> not stated <i>Ethnicity:</i> not stated <i>Other information:</i> receiving specialised support for "slow learning" or "learning problems"
9018 Hastings and Schwieso (1998a)	UK	Off-task	Systemic	Change in seating arrangements	Teacher	Reversal	<i>Sample size:</i> 62 <i>Age:</i> 9 to 11 years <i>Sex:</i> girls and boys <i>Social class:</i> middle class <i>Ethnicity:</i> predominantly white <i>Other information:</i> none
9045 Hastings and Schwieso (1998b)	UK	Off-task	Systemic	Change in seating arrangements	Teacher	Other	<i>Sample size:</i> 21 <i>Age:</i> 7 to 8 years <i>Sex:</i> girls and boys <i>Social class:</i> mainly working class <i>Ethnicity:</i> a variety of ethnic backgrounds <i>Other information:</i> three children identified as disruptive were individually monitored
9021 Jordan and Le Metais (1997)	Australia	Socially inadequate	Cognitive behavioural	Children taught social skills in three phases: discussion of what makes an acceptable friend; performing tasks in pairs; and performing tasks as a co-operative group.	Teacher	Other	<i>Sample size:</i> 6 <i>Age:</i> 10 to 12 years <i>Sex:</i> girls and boys <i>Social class:</i> not stated <i>Ethnicity:</i> not stated <i>Other information:</i> none
9022 Kamps <i>et al.</i> (1999)	USA	Off-task Disruptive Aggressive	Cognitive behavioural	Rewards for positive behaviour; social skills training; peer tutoring; home-school communication system	Teacher Peer	Trial	<i>Sample size:</i> 52 <i>Age:</i> 6 to 13 years <i>Sex:</i> girls and boys <i>Social class:</i> 'low to middle' class <i>Ethnicity:</i> not stated <i>Other information:</i> all identified with emotional or behavioural difficulties or being at risk of developing them
9024 Kelly (1999)	UK	Disruptive Aggressive	Systemic	Circle time	Teacher Peer	Other	<i>Sample size:</i> 20 <i>Age:</i> 10 to 12 years <i>Sex:</i> girls and boys <i>Social class:</i> working class

Appendix B: Characteristics of all outcome evaluations included in the review

Study	Country	Type of EBD	Theoretical model	Brief details of intervention	Intervention provider	Evaluation design	Characteristics of children
							<i>Ethnicity:</i> not stated <i>Other information:</i> identified as often exhibiting behaviours associated with low self-esteem
9029 Lochman <i>et al.</i> (1993)	USA	Aggressive Socially inadequate	Cognitive behavioural	Children taught social problem-solving; positive playing; dealing with string negative feelings and peer social skills	Psychologist Psychology graduates	RCT	<i>Sample size:</i> 52 <i>Age:</i> 9 to 10 years <i>Sex:</i> girls and boys <i>Social class:</i> lower to middle class <i>Ethnicity:</i> all participants 'black' <i>Other information:</i> all socially rejected by peers
9030 Lochman <i>et al.</i> (1987)	USA	Aggressive	Cognitive behavioural	Children taught to cope with anger	Teacher Researcher	RCT	<i>Sample size:</i> 32 <i>Age:</i> 11 years <i>Sex:</i> all male <i>Social class:</i> not stated <i>Ethnicity:</i> 22 'white'; 10 'black' <i>Other information:</i> identified by teachers as the most disruptive and aggressive
9000 Manning (1988)	USA	Off-task Disruptive	Cognitive behavioural	Taught children to use self-instructional techniques for controlling behaviour through modelling, role-play and the use of reminder cues.	Researcher	RCT	<i>Sample size:</i> 55 <i>Age:</i> not stated <i>Sex:</i> all male <i>Social class:</i> 21 described as 'low socio-economic status'. <i>Ethnicity:</i> 26 from ethnic minorities <i>Other information;</i> IQ range 85-115
9031 Martens <i>et al.</i> (1997)	USA	Off-task	Behavioural	Teacher praise	Researcher	Reversal	<i>Sample size:</i> 2 <i>Age:</i> 9 to 10 years <i>Sex:</i> all male <i>Social class:</i> not stated <i>Ethnicity:</i> not stated <i>Other information:</i> both identified by teachers as exhibiting off-task behaviour
9033 Nelson (1996)	USA	Disruptive Aggressive	Behavioural Systemic	School-wide changes (e.g. establishing clear and consistent behavioural guidelines across the school); adoption of school-wide classroom management intervention ('Think Time'); and tailored individual interventions	Teacher	Trial	<i>Sample size:</i> 48 <i>Age:</i> 6 to 12 years <i>Sex:</i> girls and boys <i>Social class:</i> 75 percent of school entitled to a free school lunch <i>Ethnicity:</i> 18 percent from ethnic minorities <i>Other information:</i> target children rated by teachers as showing disruptive behaviour.

Appendix B: Characteristics of all outcome evaluations included in the review

Study	Country	Type of EBD	Theoretical model	Brief details of intervention	Intervention provider	Evaluation design	Characteristics of children
9035 Omizo <i>et al.</i> (1988)	USA	Aggressive	Cognitive behavioural	Group counselling in three phases: understanding anger; analysing own anger; modelling and practising appropriate behaviours when feeling anger	Researcher	RCT	<i>Sample size:</i> 24 <i>Age:</i> 9 to 12 years <i>Sex:</i> girls and boys <i>Social class:</i> not stated <i>Ethnicity:</i> not stated <i>Other information:</i> identified by teachers as aggressive and hostile
9037 Sawyer and MacMullin (1997)	Australia	Aggressive and disruptive behaviour	Cognitive behavioural	Taught social skills for dealing with difficulties with peers	Teacher	Trial	<i>Sample size:</i> 198 <i>Age:</i> mean age 8 years <i>Sex:</i> girls and boys <i>Social class:</i> between 18% and 22% working class <i>Ethnicity:</i> not stated <i>Other information:</i> none
9036 Salend and Gordon (1987)	USA	Disruptive	Behavioural	Use of tokens to award good behaviour	Teacher	Reversal	<i>Sample size:</i> 9 <i>Age:</i> 8 to 10 years <i>Sex:</i> girls and boys <i>Social class:</i> not stated <i>Ethnicity:</i> not stated <i>Other information:</i> all with learning difficulties of EBD
9039 Shepp and Jenson (1983)	USA	Off-task	Behavioural Cognitive behavioural	Taught one child to use self-instruction through modelling, practising and reminder cues; combined with the use of rewards for appropriate behaviour	Researcher Teacher	Reversal	<i>Sample size:</i> 1 <i>Age:</i> 7 years <i>Sex:</i> all male <i>Social class:</i> not stated <i>Ethnicity:</i> not stated <i>Other information:</i> identified with moderate learning disabilities
9040 Shook <i>et al.</i> (1990)	USA	Disruptive	Behavioural	Use of tokens to award good behaviour	Teacher	Other	<i>Sample size:</i> 3 <i>Age:</i> 6 to 7 years old <i>Sex:</i> girls and boys <i>Social class:</i> school located in a low socio-economic status area <i>Ethnicity:</i> not stated <i>Other information:</i> one participant receiving specialised instruction in reading and maths
9043 Wheldall and Panagopou	UK	Off-task	Behavioural	Self-monitoring plus rewards for on-task behaviour	Teacher	Other	<i>Sample size:</i> 75 <i>Age:</i> 8 to 11 years <i>Sex:</i> girls and boys <i>Social class:</i> not stated

Appendix B: Characteristics of all outcome evaluations included in the review

Study	Country	Type of EBD	Theoretical model	Brief details of intervention	Intervention provider	Evaluation design	Characteristics of children
lou-Stamatelatu (1991)							<i>Ethnicity:</i> not stated <i>Other information:</i> nine children selected as target children by their teachers for displaying high levels of off-task behaviour

APPENDIX C: Characteristics and findings of the 'sound' outcome evaluations

Study	Country	Type of EBD	Description of intervention	Theory	Authors' judgement about effect	Reviewers' judgement about effect
9012 Broussard and Northrup (1997)	USA	Disruptive behaviour	Students identified as disruptive could earn tokens for good behaviour in class, which could be exchanged for time spent in an activity with a peer of their choice. Procedures monitored by a psychologist.	Behavioural	Effective for reducing the occurrence of disruptive behaviour (from between 23% to 51% to between 0% and 12% across children). Overall conclude intervention to be effective: "This study demonstrates the potential effectiveness of the use of peer attention as a differential reinforcement to reduce disruptive classroom behaviour when based on prior assessment of possible maintaining variables." (p 74)	Unclear due to limitations of drawing conclusions from 'single cases' (N=4)
9014 Crouch <i>et al.</i> (1985)/	USA	Off-task	The whole class could earn tokens if 80% were on task. If more than six students were disruptive in any one period, the class would lose tokens. All procedures were conducted by the regular classroom teacher.	Behavioural	*Effective for reducing off-task and disruptive behaviour (by approx. 10%) *Effective for increasing on-task behaviour (by approx 20%) Overall conclude intervention to be effective: "The happy face daily report card system appears to be a very effective procedure that kindergarten and pre-school teachers should consider using when faced with children displaying a wide variety of inappropriate behaviours." (p 42)	Reviewers agreed with authors but noted very small sample size.
9017 Fowler <i>et al.</i> (1986)	USA	Disruptive behaviour in the playground	In a role-reversal, three disruptive children were appointed as playground monitors for other children in their class. They could give points for good behaviour and fine points for bad behaviour during break times. The 'peer monitoring' was compared to 'adult monitoring'. The intervention was monitored initially by a 'programme consultant' and then the regular teacher.	Cognitive behavioural	*Effective for reducing negative interactions *Authors note that adult monitoring was more effective than peer monitoring Overall conclude intervention to be effective: "Children with severe behaviour problems can reduce their own problem behaviors when they are assigned to monitor classmates for better behaviour." (p 442)	Unclear due to limitations of drawing conclusion from 'single cases' (N=3) Also, noted that the reduction of negative interactions did not generalise to other break times when peer monitoring was not in place.

Appendix C: Characteristics and findings of the 'sound' outcome evaluations

Study	Country	Type of EBD	Intervention details	Theory	Authors' judgement about effect	Reviewers' judgement about effect
9018 Hastings and Schwieso (1995 {study1})	UK	Off-task	The intervention aimed to increase 'on-task' behaviour The layout of two primary school classrooms was changed from sitting in groups to sitting in rows.	Systemic	*Effective for increasing children's 'time on task' Overall conclude intervention to be effective: "On-task behaviour was higher in the rows arrangement, with the effect being most marked for children who were least on-task when seated in groups." (p 279)	Reviewers agreed with authors, but noted that 76 percent of the children preferred to sit in groups and 57 percent thought they worked hardest in groups. *No data presented for 'off-task' behaviour
9030 Lochman <i>et al.</i> (1987)	USA	Aggression	Aggressive boys were given 18 weekly sessions of an anger-coping intervention developed by Lochman and colleagues. The teachers of some of the boys were also given training in problem-solving, skill training and contingency management.	Cognitive-behavioural	*Effective for reducing aggression and improving social competence *No effect on self-esteem ratings *Teacher professional development did not enhance treatment effects. Overall conclude only some positive effects: "This lack of improvement in self esteem appeared to be due to the current sample having an initially higher level of self esteem than had our prior samples of aggressive boys."	Reviewers agreed with authors.
9000 Manning (1988)	USA	Off-task behaviour	<i>Intervention group:</i> Self-instructional techniques were taught to children identified as showing off-task behaviour, in a series of special classes using modelling, practising and cueing appropriate behaviour. The author of the study delivered classes. <i>Control group:</i> Received the same series of classes but were not taught self-instruction	Cognitive behavioural	*Effective for controlling off-task behaviour and increasing self-esteem *These moderate to substantial effects were maintained at a three-month follow-up Overall conclude intervention to be effective: "Findings indicate that CBM may be considered as a classroom management option for regular education." (p 193)	Reviewers agreed with authors.

Study	Country	Type of EBD	Intervention details	Theory	Authors' judgement about effect	Reviewers' judgement about effect
9035 Omizo et al. (1988)	USA	Aggression, hostility	<i>Intervention group:</i> Children identified as hostile and aggressive by teachers received 10 group-counselling sessions delivered by a trained counsellor. These focused on understanding angry feelings; specific instances that provoked anger; and practising appropriate behaviours. <i>Control group:</i> Watched films that did not depict aggressive behaviours	Cognitive behavioural	Effective for reducing aggression and hostility Overall conclude intervention to be effective: "The results support using a group counselling intervention strategy for teaching children to behave in a less aggressive and hostile ways." (p 245)	Reviewers agreed with authors.
9036 Salend and Gordon (1987)	USA	Inappropriate verbalisations	All children in the classroom were given a ribbon by the teacher. The ribbon would stay in place if they did not talk at inappropriate times. They could earn tokens if the ribbon stayed in place, which could be exchanged for treats. The ribbon would be removed if any member of the group talked out of turn.	Behavioural	*Effective for decreasing inappropriate verbalisations (return to previous levels when intervention withdrawn) Overall conclude intervention to be effective: "Results suggest that the group oriented timeout ribbon is a viable and effective method of decreasing inappropriate behaviour." (p 131)	Reviewers agreed with authors, but noted very small sample size.
9037 Sawyer and MacMullin (1997)	Australia	Aggressive and disruptive behaviour	<i>Intervention group:</i> All children in years 3 and 4 of one school took part in a 34-session social skills programme delivered over a 20-week period by their regular classroom teachers. The children were taught how to deal with common peer difficulties such as teasing, aggressive acts and arguments. <i>Control Group:</i> Children in a	Cognitive behavioural	*Effective for increasing skills in managing problematic social situations *Ineffective for maintaining more positive relationships with peers at a one-year follow-up *Ineffective for social and emotional problems Overall conclude mainly ineffective: "The program improved the ability of children to cope with potentially difficult social situations. However, the program did not reduce the prevalence of teacher-reported or mother-reported childhood emotional and behavioural problems." (p 378)	Reviewers agreed with authors.

Study	Country	Type of EBD	Intervention details	Theory	Authors' judgement about effect	Reviewers' judgement about effect
			second school did not receive the programme.			
9039 Shepp and Jensen (1983)	USA	Off-task	An 'operant' intervention involving positive reinforcement of on-task behaviour (one minute of extra time for an activity valued by the participant) and negative reinforcement for off-task behaviour (one minute loss of playtime). This was compared to a 'cognitive' intervention involving self-instructional techniques taught in three two hour training sessions using modelling, practising and cueing.	Behavioural Cognitive behavioural	*Operant strategy alone or in combination with a 'cognitive' strategy increased proportion of time on-task. Overall conclude the 'operant' strategy to be effective and the 'cognitive' strategy alone to be harmful: "...This operant treatment maintained predominant status as an effective intervention when used by itself or in combination with a cognitive treatment technique." (p 203)	Unclear due to limitations of drawing conclusion from a single case

APPENDIX D: Methodology used in the sound outcome evaluations

Study	Design	Sample size and characteristics	Outcomes measured (and tools used)	Follow up interval	Attrition	Reviewers' comments
Broussard and Northrup (1997)	Reversal design Three phases over 10 to 30 weeks (intervention introduced, withdrawn, re-introduced)	Four male students aged 7-9 referred to a psychologist for an assessment of disruptive behaviour	Observations made by trained graduate and under-graduate students of: 1. Inappropriate vocalisations 2. Out-of-seat behaviour 3. Playing with objects 4. On-task behaviour	Immediate	No attrition occurred	Data analysed for each of the four participants separately
Crouch <i>et al.</i> (1985)	Reversal design Four phases over 21 weeks (intervention introduced, withdrawn, re-introduced, withdrawn)	22 students in a third grade art class. No other details on characteristics of sample given.	Observations made by classroom teacher of: 1. Off-task behaviour 2. On-task behaviour 3. Disruptive behaviour	Immediate	No attrition occurred	Small sample size (N=22)
Fowler <i>et al.</i> (1986)	Reversal design Four phases over 11 weeks (intervention introduced, withdrawn, re-introduced, withdrawn)	Three seven-year-old boys all enrolled in a mainstream class but receiving specialised support for "slow learning" or "learning problems"	Observations made by trained graduate and undergraduate students of negative interactions	Immediate	No attrition occurred	Data analysed for each of the three participants separately
Hastings and Schwieso (1995 {study1})	Reversal design Three phases lasting two weeks each (intervention A (rows) introduced; withdrawn, and Intervention B (groups) introduced; Intervention A re-introduced)	62 pupils from two mixed ability classes of nine- to 11-year-olds from the same junior school (23 boys and 29 girls)	On-task and off-task behaviour were observed by unspecified observers for four days in each of the six weeks of the study.	Immediate	No attrition occurred	No baseline data on outcomes presented in their normal seating arrangements ('maze' formation)
Manning (1988)	RCT	<i>Intervention group</i> = 28 (22 boys; 11 from ethnic minority groups; 14 low socio-economic status) <i>Control group</i> = 27 (15 boys; 15 from ethnic minority groups; 7 low socio-economic status)	1. Teacher perceptions of children's classroom behaviour (Brown-Hamill Behavioural Rating Profile Scale) 2. Observations of the occurrence of 'on-task' behaviour 3. Locus of control (Nowicki-Strickland Locus of Control Scale)	One month and three months	No attrition occurred	None

Study	Design	Sample size and characteristics	Outcomes measured (and tools used)	Follow up interval	Attrition	Reviewers' comments
		<i>IQ between 85 and 115.</i>				
Lochman <i>et al.</i> (1987)	RCT	32 boys (aged 11, 22 described as 'white', 10 as 'black'), identified by their teachers as the most disruptive and aggressive Three groups: Control = 8 Anger coping programme = 11 Anger coping programme with teacher consultation = 13	1. Aggression (Missouri Children Behaviour Checklist; Behavior Observation Schedule for Pupils and Teachers) 2. Perceived social competence (Perceived Competence Scale for Children) 3. Self-esteem (Perceived Competence Scale for Children)	Not stated	No attrition	Few details are given about the intervention programmes, making it difficult to judge whether they could be replicated in mainstream schools by teachers.
Omizo <i>et al.</i> (1988)	RCT	24 children (aged 9-12, 10 girls and 14 boys) randomly selected from a pool of 47 children nominated by their teachers as behaving in an aggressive and hostile manner Intervention group = 12 Control group = 12	Teachers (blind to intervention assignment) rated children on the School Behaviour Checklist. The following sub-scales formed the outcomes of interest: 1. Aggression 2. Hostile isolation	One week after the intervention	No attrition	As the intervention was conducted by a trained counsellor, it may not be easily incorporated into mainstream practice.
Salend and Gordon (1987)	Reversal design Four phases over 10 weeks (intervention introduced, withdrawn, re-introduced, withdrawn)	Group A = four boys and one girl aged 8 and 9 (four with learning difficulties, one with EBD) Group B = three boys and one girl aged 9 and 10 (all with learning difficulties)	'Inappropriate verbalisations' (defined as any verbalisation occurring without the teachers permission) were measured via independent observation by both the teacher and a further (unspecified) trained observer.	Immediate	No attrition	Very small sample size

Study	Design	Sample size and characteristics	Outcomes measured (and tools used)	Follow up interval	Attrition	Reviewers' comments
Sawyer and MacMullin (1997)	Trial Two schools matched on socio-economic status.	<i>Intervention group</i> = 102 children (60% male; mean age =8.2; 22% working class) <i>Control group</i> = 86 children (54% male; mean age = 8.4; 18% working class)	1. Social skills (self-report measured by the Inventory of Problematic Social Situations for Children) 2. Quality of peer relationships (measured by peer sociometrics 'How much would you like to play with each of these children?') 3. Childhood emotional and behavioural problems (mothers ratings on the Child Behaviour Checklist and teacher ratings on the Teacher Report Form)	Immediate and at a one-year follow-up	<i>Intervention group</i> : 30% (N=31) <i>Control group</i> : 32% (N=27)	Social skills were significantly poorer in the intervention group at the start of the study, although analysis controlled for this.
Shepp and Jensen (1983)	Reversal design Five phases over three weeks (baseline; intervention A introduced; intervention A withdrawn; intervention B introduced; intervention C introduced)	One seven-year-old boy (identified as moderately learning disabled and hyperactive)	1. On-task behaviour (observed using a portion of the 'Teacher-Pupil Interaction Scale')	Immediate	No attrition	Very small sample size