



REVIEW

August 2004

A systematic review of how theories explain learning behaviour in school contexts

**This review is supported by the Teacher
Training Agency (TTA) to promote the use of
research and evidence to improve teaching
and learning**

*Review conducted by the Behaviour Management (Canterbury
Christ Church University College) Review Group*

AUTHORS AND INSTITUTIONAL BASES

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LIST OF ABBREVIATIONS

AARE	Australian Association for Research in Education
AEN	Additional educational needs
AERA	American Educational Research Association
ASSIA	Applied Social Sciences Index and Abstracts
BEI	British Education Index
BERA	British Educational Research Association
BIDS	Bath Information and Data Services
CERUK	Current Educational Research in the UK
CPD	Continuing professional development
DfES	Department for Education and Skills
EBD	Emotional and behavioural difficulties
EERA	European Educational Research Association
EPPI-Centre	Evidence for Policy and Practice Information and Co-ordinating Centre
ERIC	Educational Resources Information Center Database
ESRC	Economic and Social Research Council
ITE	Initial teacher education
LEA	Local education authority
LSA	Learning support assistant
NFER	National Foundation for Educational Research
NQTs	Newly qualified teachers
QTS	Qualified teacher status
SEN	Special educational needs
SENCo	Special educational needs co-ordinator
TTA	Teacher Training Agency
ZETOC	British Library's Electronic Table of Contents Database

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SUMMARY

Background

Behaviour management has been the focus of considerable research, publication and professional development in the field of education. Consequently, there is a plethora of information and strategies to inform those involved in teacher education and school development. In spite of this, pupil behaviour remains an area of concern for policy-makers, schools and their teachers. The issue of how best to train and support teachers to manage pupil behaviour is an issue of considerable importance if policies for increased inclusion, raising attainment, and widening participation are to be effectively enacted in educational settings. The government is committed to improving the management of behaviour in schools via a range of initiatives¹. Initial teacher education (ITE) is an essential component of these initiatives in that it provides a unique opportunity to establish the foundations for effective practice. Behaviour management is an area consistently identified by newly qualified teachers (NQTs) as an area of professional expertise in which trainees feel they would benefit from greater support as they enter teaching (Buell *et al.*, 1999; Cains and Brown, 1996; Cains and Brown, 1998a; Cains and Brown, 1998b; Gallio and Little, 2003). In response to these perceptions, the Teacher Training Agency (TTA) has strengthened the expectations for teacher training in relation to behaviour management via *Qualifying to Teach*, the new Standards and Requirements for Qualified Teacher Status (QTS) (TTA, 2002). One way to enhance opportunities for trainees to achieve these demanding expectations is to build an evidence base to support tutors in providing effective ITE training for behaviour management. This systematic review was commissioned by the TTA in order to contribute to such an evidence base. In preparing for the review by examining relevant literature, there was evidence that *'teachers adopt strategies based on ideology, common sense or school based effectiveness but rarely on evaluated effectiveness'* (Olsen and Cooper, 2001). In the light of these findings, and in the knowledge that another TTA-funded review (Harden *et al.*, 2003) had been commissioned that was concerned with strategy use for pupils with emotional and behavioural difficulties (EBD), it was decided that the review could best support ITE tutors by:

- a focus on the purpose and *outcomes* of behaviour management (i.e. the promotion of effective learning behaviours)
- an emphasis on the theoretical underpinnings of behaviour management in school contexts
- the consideration of a conceptual framework for learning behaviour that would allow trainees to explore and understand the determinants of learning behaviour and make sense of, and evaluate, the efficacy of the many strategies offered to them during their training

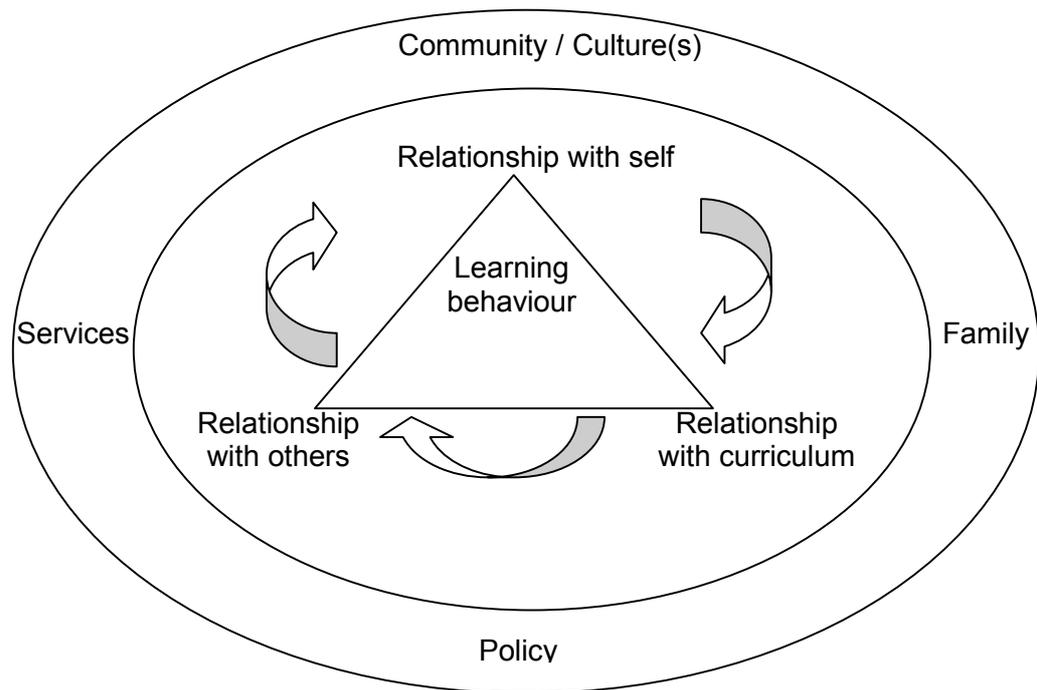
¹ Reported at TTA behaviour event March 2003, including the setting-up of a Professional Resource Network for Behaviour (TTA) and Department for Education and Science (DfES) Key Stage 3 Behaviour and Attendance Strategy service training for schools.

Aims of the review

The overall aim of the review was to inform ITE tutors about the theoretical underpinnings of learning behaviours in school contexts in order to enhance ITE in behaviour management for trainees. In essence, we were concerned that this review should contribute to training that allows trainees to reflect upon the *purpose* of behaviour management. All too often teachers and the media perceive behaviour management to be solely concerned with establishing control over disruptive pupils. With this perception, it is not surprising that trainees continue to report that they feel inadequately prepared given that they cannot realistically anticipate and prepare for the entire range of pupil responses they will experience in the classroom. As a consequence, trainees and teachers continue to seek more and more strategies in the hope that they will be better able to cope with anticipated classroom disruption. While skills in delivering a range of strategies are clearly a *necessary* part of an NQT's survival toolkit, they are not, in themselves, *sufficient* to secure the confidence and competence sought by the trainee.

We were concerned that trainees should have access to research about theoretical explanations for learning behaviours as a way of securing increased understanding of the behaviour of their pupils. Additionally, we wanted to address teacher perceptions that they were not 'behaviour specialists' by concentrating on the end purpose of behaviour management: that is, securing effective learning behaviour. It is in this area – promoting learning behaviour through subject teaching – that trainees could focus on the interdependent relationship between learning and behaviour, and so foster the foundations for effective behaviour management in schools.

Clearly, 'learning behaviour' is a construct that is not easily defined and this review acknowledges the complexity of the variables linked to societal, family and school environments that influence pupil behaviour in the classroom. This complexity is often perceived as a barrier to trainees because they are aware that they do not have control over many of the pupil, family and cultural influences that shape pupil behaviour. It was thus seen as important that a conceptual framework (see Figure S.1), that would allow trainees to explore and understand the determinants of learning behaviour, should underpin this review.

Figure S.1: Conceptual framework – behaviour in school contexts

The review thus had three key elements:

1. To examine how researchers used theories to explain learning behaviour
2. To explore what is known about children's learning behaviour in school contexts
3. To examine the utility of the review's underpinning conceptual framework for end users

Review question

The review question emerged from the underlying conceptual model adopted by the researchers and the prescribed need for the review to be of use to tutors in enhancing ITE for behaviour management. The review question frames the context within school environments and is based on Bronfenbrenner's 'Ecological Systems Theory' (1989). The school context is viewed as a '*microsystem*' that '*is a pattern of activities, social roles and interpersonal relations...*' (Bronfenbrenner and Morris, 1998, p 1013). The review question posed was:

How do theories explain learning behaviour in school contexts?

In order to answer the review question, it was necessary to address the following component questions:

How have theories been used to explain learning behaviours in schools contexts?

What kinds of theories have been used to explain learning behaviour in school contexts?

What learning behaviours, in school contexts have been explained by theories?

Answers to our research question would be of use to ITE tutors and school-based mentors who have responsibility for initial teacher training. Routes to teacher training are varied and it is important that information from this review can be used in a range of training contexts. It is also believed that findings from this review will be of use to national and local education authority (LEA) policy-makers and strategists who seek to make an impact on improving learning behaviour in school contexts. It is important for LEA teachers and schools that there is some progression, continuity and coherence in the development and maintenance of effective learning behaviour in school contexts. With this in mind, we engaged a broad based Advisory Group in the formulation of our research question but with a bias towards ITE. External reviewers of the final report included an academic and researcher in special educational needs (SEN) and inclusion, a representative from the national body responsible for initial teacher training (TTA), a headteacher with specific expertise in behaviour management, and an academic/researcher with significant experience in both behaviour and teacher education.

Methods

The review was conducted using the procedures and guidelines for systematic review of research in education formulated by the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) at the Institute of Education, London. A wide-ranging search was carried out for studies, written in English, published between 1988 and 2002, covering theoretical links to learning behaviour in school contexts for pupils aged 3-16 years. The search for studies involved searching relevant electronic databases and journals online, following up citations in other reviews, handsearching journals shelved in the library and using personal contacts. Inclusion and exclusion criteria were applied to studies before full texts were read and labelled, resulting in studies being excluded because of insufficient relevance to the review question. Due to the short timeframe of the review, stringent criteria were applied in order to select the final studies for the in-depth review. The search process, keywording and in-depth review were compliant with recommended EPPI-Centre quality assurance procedures (EPPI-Centre, 2002a, 2002b).

Findings

Identification of studies

Our initial search, using broad inclusion and exclusion criteria, developed from the review question and the underlying conceptual framework, identified 218,353 citations in handsearches and in non-limited searches of electronic databases (see Figure 3.1). This search lacked specificity, so in order to identify studies linking theoretical explanations of learning behaviour to teacher training, new searches were conducted using limited and combined search terms. This resulted in a lower yield. At this point, it was found that many of the citations yielded were still not sufficiently relevant to the focus of the review. Consequently, the inclusion criteria were refined further and these more specific

conditions were applied to the research reports. Finally, 46 studies were found to be relevant to all of the (refined) inclusion criteria and none of the exclusion criteria. These 46 'included' studies were used to describe the 'systematic map'.

Systematic map

The 46 included studies were characterised using a series of keywording categories. Ten categories were in accordance with the EPPI-Centre *Keywording Strategy for Classifying Educational Research* (EPPI-Centre, 2002a) and five categories of review-specific keywords were added: theories, behaviour, relationships, learning outcomes and SEN; details of findings from the mapping of studies are detailed in section 5.1.2.

Mapping revealed the following.

Context

- The educational settings in which the studies were undertaken were evenly distributed between primary and secondary (Table 3.4). The majority of studies (65%) were either American (18), or English (12) (Table 3.5).
- The majority of studies were concerned with learners in the 5-16 year age group (Table 3.3). There were only eight (16%) studies that focused on the pre-school, 0-4 year age range. This was expected, given the wording of the research question and search terms.
- Thirty-nine out of the 46 studies (84%) were concerned with mixed sex grouping (Table 3.12). This may reflect gaps in research in relation to theoretical explanations of gender differences in the distribution and acquisition of learning behaviours.
- The studies reflected a range of types of relationships extant within school contexts (Table 3.7). Relationships with peers (26 studies, 57%) and teachers (29 studies, 63%) were the most frequently use categories.
- Thirty-four of the 46 studies were either cross-curricular/general or did not have a specific focus on curriculum issues (Table 3.8 and Table 3:9).

Researcher's use of theory:

- Mapping suggests that researchers rarely used experimental studies that seek to establish the role of theory in manipulating, predicting or influencing the development of learning behaviours (Figure 3.4). It was more common for theory to be used to 'shed light upon' learning behaviours, either by exploring relationships or evaluating research outcomes. Social theories were more commonly found in researcher-manipulated evaluations and exploration of relationships (38%). Cognitive theories were more common in exploration of relationships (44%) as were developmental (57%) and learning theories (50%).

Types of theories referred to

- Over half the studies included more than one type of theory (Figure 3.2). The most frequently found theories in the included studies were classified as social (21 referents), cognitive (18 referents) and affective (17 referents). This

suggests that those involved in researching learning behaviours are interested in the interplay of feeling, thinking, and doing/interacting. Eleven of the studies using social and/or cognitive perspectives made direct reference to the work of Piaget and Vygotsky. Affective theories were related to reasoned action, Maslow's theory (and school attachment) and Bowlby's attachment theory. When theories were mapped in relation to age, it was found that social theories were most common in the 0-4 year age range and cognitive in the 5-10 years, closely followed by social theories. In the 11-16 year age group, however, there was an even spread of cognitive, social and affective theories with very few addressing behavioural or developmental theories (Table 3.14). This may suggest that researchers have differing priorities in relation to type of 'learning behaviour' and different phases of education: that is, pre-school (social developmental); primary (cognitive development/learning); secondary (personal development and responsibility involving emotional, social and cognitive development); and that these differing priorities are associated with the selection different theoretical explanations. In looking at combinations of theories used (Figure 3.3), it is interesting to note that researchers have linked cognitive theories more frequently with social theories to explain learning behaviour than with affective theories. This may suggest that the link between affective and cognitive development needs to be further emphasised in research into learning behaviour.

Learning behaviours

- A range of terms was used to describe learning behaviours. Studies reflected the complexity of learning behaviour and were consistent with a view that behaviour used to describe learning reflect that learning in school contexts is influenced by the interaction of a range of individual, curricular and social variables. Learning behaviours described in studies were categorised by the review team, using review-specific keywords extracted from qualified teacher status (QTS) standards (TTA, 2002) (see Appendix 2, Tables 2.1.i and 2.1.ii). These were engagement; collaboration; participation; communication; motivation; independent activity; responsiveness; self-regard; self-esteem; responsibility; disruptiveness; disaffection and 'problems'. The most commonly used category was 'engagement' which occurred in 43% of the studies. Table 3.16 sets out these age groups and shows the frequencies of particular learning behaviours for each group. In the 0-4 years age group, the frequencies of learning behaviours that were recorded are fairly evenly spread. However, there was a narrow choice of learning behaviours (19) in relation to the number for school-age children (average = 55) with no studies that included self-regard, self-esteem, disaffection or disruptiveness among learners in this age group. Even allowing for the few number of studies in the 0-4 age group, this finding may support the view expressed above that researchers construe 'learning behaviours' to have differing priorities at pre-school than other stage of education. In the 5-10 years age group, engagement, collaboration and participation are the most common learning behaviours recorded, and this is also true for the 11-16 year-olds.
- The mapping of learning behaviours also revealed that there were far fewer references to 'negative' than to 'positive' learning behaviours in relation to theory. This may reflect a need for more research in this area, but it is also possible that studies that propose strategies for dealing with problematic

behaviours in schools include elements of theory. This review did not include studies about behaviour management strategies, which were reviewed by another team (Harden *et al.*, 2003).

In-depth review and synthesis

Owing to time constraints, we were restricted in the number of studies that we could review in depth. Following advice from our Advisory Group, we used the combined inclusion criteria of representativeness (in relation to the systematic map) *and* methodological rigour. This involved applying the inclusion criteria outlined in section 2.2.3 *in combination with* judgements made about the quality of studies and weight of evidence for the review question. Five out of the 46 included studies were selected for the in-depth review, using the criteria that all included studies should be acceptable quality as judged by the review authors (and subsequently corroborated through the data-extraction process by the application of the EPPI-Centre's weight of evidence – achieving medium or high weight of evidence) *and* should be address the themes of the overall systematic map in relation to 'theories', 'learning behaviour', 'explain' and 'school contexts' (Table 4.1). The criteria were not applied systematically to the whole map so the in-depth review is illustrative rather than systematic. It should be noted that findings from these studies are not necessarily transferable to all contexts as only one study (McDermott *et al.*, 2001) analysed data from a sample that was representative of the wider population of pupils (USA) and suggested that the study's findings could be generalised accordingly.

The five studies consisted of the following: one that sought to test the interaction between the amount of on-task interaction between students of differing ability, type of teaching role ('supervisor' v/s 'developer') and progress in cognitive growth, as measured by a psychometric test of cognitive ability (Ben-Ari and Kedem-Friedrich, 2000; sample size = 1,017); the relationship between goal structure in the classroom and incidence of disruptive behaviour (Kaplan *et al.*, 2002; sample size = 388); the relationship between identified student learning behaviours (e.g. motivation and self-discipline, verbal and non-verbal learning) and cognitive, social (school) and emotional factors (McDermott *et al.*, 2001; sample size = 1,268); an examination of the relationship between affective factors (e.g. attitude, self-efficacy) and learning behaviour in Maths and English for average and low attaining pupils (Norwich and Rovoli, 1993; sample size = 28); an examination of what constitutes effective self-regulation of goal attainment (Oettingen *et al.*, 2000; sample size = 55).

Characteristics of studies in the in-depth review

Context (See Table 4.1.)

- The educational settings in which the studies were undertaken were one primary, two secondary and one middle school and one using national census data from age range 6-17 years. Three of the studies were American, one was English and one was German. This data is representative of studies included in the review with the exception of the study carried out in Germany.
- Four of the five studies were concerned with learners in the 5-16 year age group. This was expected, given the criteria for selecting studies for the in-

depth review and is representative of the 46 included studies. The remaining study was concerned with primary 8-11year-old pupils.

- All studies were concerned with mixed sex groups. This is representative of the 46 studies included in the review.
- The studies reflected a range of types of relationships extant within school contexts. All studies were concerned with more than one relationship: pupil with teacher = 4; pupil with peer = 2; pupil with parent = 1; pupil with school = 2; and pupil with self = 3. This data is representative of the 46 studies included in the review.
- In looking at the curriculum context, two of the studies were concerned with Maths; one with Maths and English; one did not specify a curriculum area; and one was concerned with learning a modern foreign language. This distribution differs from that of the 46 included studies which were weighted towards studies that did not focus on a particular curriculum area.

Weight of evidence

Three of the five studies (Kaplan *et al.*, 2002; Norwich and Rovoli, 1993; Oettingen *et al.*, 2000) were considered to provide high weight of evidence in relation to the review question and two of these were additionally considered to be high weight (Norwich and Rovoli, and Oettingen *et al.*) in terms of methodological rigour, the other being of medium weight. Of the other two studies, one (Ben-Ari and Kedem-Friedrich, 2000) provided high weight in terms of methodological rigour and medium weight in terms of answering the review question; the other (McDermott *et al.*, 2001) provided medium weight evidence in terms of both rigour and relevance to the review question. In terms of weight of evidence, all studies provide high to medium evidence. However, given the relatively few studies selected for in-depth review, findings from the review are considered to be tentative and developmental.

The tentative conclusions drawn from the studies in the in-depth review that clearly linked their theoretical framework to their results are outlined below.

Theoretical explanations of learning behaviour

(1) How have theories been used by researchers?

Four of the five studies were 'driven by theory' because a particular theory was included in the research design and was explored or tested in the research process. In examining the methodological rigour of these studies, there is preponderance for high weight of evidence (three out of four studies). The fifth remaining study provided medium weight evidence for the use of theory to 'explain' the research findings. The evidence from these studies suggests that theories do have potential for explaining learning behaviours and informing teachers' use of strategy development and evaluation for the promotion of effective learning.

(2) What kind of theories have been identified by researcher?

In seeking to explain learning behaviour, there is high weight of evidence that researchers have used theories that combine cognitive affective and/or social perspectives (Table 4.2). This is consistent with a view that learning behaviour is

influenced by the interaction of how the learner thinks, feels and interacts. Four of the studies related to theories concerned with the influence of affect on cognition and learning behaviour. Theories referenced in these studies were Reasoned Action Theory (Ajzen and Fishbein, 1980), Fantasy Realisation Theory, (Oettingen, 1996), achievement goal theory of motivation in education (Ames, 1992; Anderman and Maehr, 1994; Nicholls, 1989) and self-efficacy (Bandura, 1982). The one study concerned with social factors on cognition made reference to the social constructivism of Piaget (1926) and Vygotsky (1962, 1978). These findings provide high weight evidence that researchers view the development of learning behaviour as an interactional process underpinned by relationship building.

(3) *What learning behaviours have been explained?*

Product, participation and person?

All except one of the studies in the in-depth review were concerned with a range of learning behaviours (Table 4.1).

Overall, it is difficult to make judgments about researchers' constructions of learning behaviour based on the focus of their studies and their choice of descriptors of learning behaviour. However, there is strong evidence that researchers have been pragmatic in selecting descriptors of learning behaviour by deciding what is needed for learning in school contexts and then researching those behaviours. There is thus a preponderance in the studies of learning behaviours that result in learners staying on a prescribed task in group settings (engagement, motivation, participation, collaboration, communication). These essential learning behaviours are deemed by researchers to be influenced by person centred variables subsumed by the construct 'self-efficacy'².

In the light of researchers' use of descriptors, learning behaviours described below have been grouped under: the 'product' of learning (on-task); the 'participation' aspect of learning in a group setting (participation, engagement, communication, collaboration, etc.); and the 'person' (self-esteem, self-regard, self-efficacy).

'Product' (on-task) centred learning behaviours

Motivation and self-discipline: Not surprisingly, all studies in the in-depth review were concerned with studying the variables that relate to learners being able to start, and stay, on-task. These core 'on-task' learning behaviours are commonly referred to as 'motivation' and 'self-discipline'. This evidence supports the value that researchers concerned with learning place on securing and maintaining such behaviours. This is presumably because in school settings they are perceived to be positively related to achievement, manageability of the class and the promotion of independent learning. Findings from individual studies were as follows:

- Persistent effort and goal attainment can be enhanced by teaching strategies to pupils.

² Giallo and Little (2003) '*Self-efficacy is conceptualised as an individual's judgement of his/her ability to execute successfully a behaviour required to produce certain outcomes (Bandura, 1986; Gibson and Dembo, 1984). Such beliefs are thought to be an important moderator between an individual's knowledge and skills and his/her behaviour*' (p 22).

- Achievement goal theory can explain motivation and discipline and/or self-regulation (Ames, 1992; Anderman and Maehr, 1994; Nicholls' 1989)³.
- 'Learning to learn' behaviours are identifiable and teachable (e.g. target-setting and achievement).
- A curriculum that focuses on 'performance' learning is less motivating than a pedagogy and curriculum that seeks to secure 'mastery' learning.
- Classroom goal structure is an important predictor of variance in pupils' lesson behaviour.
- Motivation is improved if positive outcomes are made meaningful, feasible and accessible to pupils.
- Personal mastery, goal orientation is negatively related to disruptive behaviours.
- Performance-approach goals are positively related to disruptive behaviour.
- Attainment in school learning is attributable to a combination of cognitive, teaching, and motivation-affective factors.
- Motivation and disciplined behaviour are significant predictors of teacher assigned grades but play no part in predication of standard test scores.

Engagement – task-related: Four of the five made reference to terms that described learner participation with the task. This 'engagement' with the task was referred to in three out of the four studies and can be reasonable assumed to be inherent to 'motivation', which was the focus of four out of five studies. This supports the view that researchers see securing engagement/involvement with the task as an important component of effective learning.

Participation (social)-centred learning behaviours

Engagement – social: Given that the review was concerned with learning behaviour in 'school contexts', it is not surprising that researchers used learning behaviour descriptors that focused on the social relationships between pupils, their peers and teachers. Terms used were 'participation', 'responsiveness', 'collaboration' and 'communication'. Three of the five studies made explicit reference to one or more of these terms, and one referred to the social dimension of pupil's perception of success.

Findings from individual studies provided medium to high weight evidence of the following:

- Social interaction is pivotal to cognitive development and influences the development of learning behaviour in school contexts.
- Heterogeneous grouping paired with a 'developer' teaching style enhances pupil engagement and social participation. This is linked to improved attainment for average to lower attaining pupils.
- Interactions between teachers and pupils convey messages about goal orientation and influence pupils' learning behaviours, relationship with the curriculum and, in turn, pupils' own goal orientations.

Person-centred learning behaviours

³ This focuses on the *meaning* students construe for school and learning,

Behaviours relating to the individual's 'relationship' with him/herself are seen by researchers to play a crucial role in key learning behaviours, such as motivation, engagement participation and independent activity. Descriptors used to define 'person-centred' learning behaviours were 'self-esteem'/'self-regard' and 'independent activity', and 'responsibility'. Three of the studies referred directly to either one of these; the other two included self-perception, perceived optimism, and socio-emotional adjustment as person-centred variables linked to motivation. Findings from individual studies were as follows:

- Self-efficacy, conceptualised as an individual's judgement of his/her ability to execute successfully a behaviour required to produce certain outcomes (derived from cognitive social learning theory, for example, Bandura, 1982), is important to the understanding of learning behaviour. This is linked to the finding that behaviour is determined by the *intention* to perform that specific behaviour. Past learning behaviour is the strongest predictor of pupils' self-efficacy and their current learning behaviour.
- Pupils' intentions to engage in learning are more significant than externally applied pressures from significant others.
- Motivation and self-discipline are reliable predictors of learning behaviour and achievement.
- The development of behaviour for learning is essentially a responsive process during which the learner seeks to make sense of the learning situation from his/her perspective.
- Self-esteem and self-regard are linked to pupils' perceived self-efficacy.
- Self-efficacy is a useful variable in gaining a better understanding of effective learning processes and academic outcomes.
- Pupils' perception of the potential barriers to learning and their ability to overcome these are expressed in pupils' behaviour intentions.
- Expectations of personal success correlate with persistent effort.
- Low self-efficacy and low attainment are correlated with disruptive behaviour in males.
- The recognition and valuing of individual student achievement is negatively related to disruptive behaviours.

Actions and contexts that could promote positive behaviours and decrease negative behaviours

Medium to high weight evidence suggests that practices in relation to promoting good behaviour (QTS S1.3) and managing behaviour (S3.3.9) could be improved by the following:

- promoting mastery orientation rather than performance orientation
- using heterogeneous groupings and facilitative teaching approaches
- promoting on-task verbal interaction between pupils
- working in partnership with pupils in goal-setting so that a shared understanding can be established in relation to anticipating and addressing barriers to learning
- discouraging competitive classroom contexts and encouraging positive interpersonal relationships

Interpretation of review findings suggest that positive learning behaviours might be also enhanced by:

- teaching that places emphasis on developing effective learning behaviour through subject teaching
- encouraging the application of theory and conceptual frameworks to the task of selecting and evaluating the use of strategies for behaviour management
- redressing the balance between behavioural approaches to behaviour management to include understanding, use and evaluation of cognitive and affective strategies
- enhancing existing assessment procedures to include formative assessment of social, emotional and behavioural indicators of learning
- teaching and assessment that seeks to develop shared understanding of learning behaviour between pupil and teacher coupled with the adoption of assessment practices that value personal achievement
- developing increased integration of the 'social' and 'academic' in recognition of the contribution of personal, social, cultural and family factors on learning and achievement; one way this might be achieved is by the integration of targets from personal, social and health education (PSHE) and citizenship into subject teaching.

Conclusions

Strengths of the review

The systematic review process has been powerful in enabling us to identify empirical evidence in relation to how theories explain learning behaviour and to specify particular school contexts. Additionally, the focus upon process and the inclusion of regular quality assurance and quality assessment procedures helped to minimise bias, maximise parity and provide 'weighted' conclusions and recommendations. In addition to providing a systematic map that characterises existing research relevant to the focus of this review, the process also enabled the review team to identify gaps in recent research.

Limitations of the review

Due to the timeframe of the review and the requirement for the review to directly inform practice, the Review Group restricted their search to empirical studies. It is acknowledged that, in adopting this search strategy, the inclusion of theoretical discussion pieces, and reviews of empirical research were not included beyond the keywording stage. In order to manage the review within the timeframe allocated to the process, it was also necessary to apply strict inclusion and exclusion criteria. Consequently, studies that had to be excluded included those that linked theories and behaviours outside school contexts (but which could usefully inform behaviour management within educational settings). The review's conceptual framework included principles derived from Bronfenbrenner's 'Ecological Systems Theory' (1989) and sought to understand the interactive processes that impact upon pupils' learning. By limiting the review to a focus upon in-school contexts (in order for the review to be manageable within its timeframe), it is probable that many studies examining other determinants of behaviour (such as relationships within the family or community, or psycho-biological factors) were excluded. Consequently, the review did not fully address the range of possibilities integral to the 'Ecological Systems Theory'. The timeframe for the review was such that only a very few studies could feasibly be

included in the in-depth review and these were selected for illustrative purposes rather than by applying the criteria systematically to the whole map. The findings from this review are thus considered to be tentative.

Implications for policy and practice for ITE in behaviour management

(Detailed in sections 5.3.1 and 5.3.2)

These implications have been interpreted from the review findings. Given the limitations of the review (see previous section), these implications should be regarded as tentative.

- It should be useful for ITE trainers to examine critically the interdependent relationship between learning and behaviour. This would allow trainees to be made aware that the promotion of 'behaviour for learning' could be the foundation of effective behaviour management.
- Interpretation of the review findings suggests that a sound professional knowledge and understanding of the theoretical underpinnings of learning behaviour would enhance training in behaviour management in ITE.
- Findings support the view that researchers *perceive* that there are generic components of learning behaviours, although some components may be subject-specific. These subject-specific components may explain pupils' differing attainment and behaviours in different lessons. It is tentatively suggested that the promotion of effective learning behaviour can be considered to be intrinsic to effective teaching and learning, and should be addressed by teachers/tutors/and mentors through their subject teaching.
- It might be useful for behaviour for learning to be given greater priority within the ITE curriculum in order to reduce the risk of 'behaviour management' being a separate 'add on' component within ITE.
- CPD for ITE tutors will need to address any identified shortfall in staff expertise in relation to the promotion and management of effective learning behaviour through subject teaching.
- The inclusion of some core SEN specialist standards (TTA, 1999) into any mandatory NQT requirements may enhance ITE training for behaviour management and better prepare teachers for the inclusion of pupils with social emotional and behavioural difficulties (SEBD).
- ITE training could usefully enhance opportunities for trainees to become familiar with assessment approaches that include social, emotional and behavioural indicators of learning.
- It may be useful to consider the production of national guidance for the promotion of learning behaviour and resolution of difficulties to which ITE students can refer and share with mentors. Such guidance would enable some consistency of training between the range of ITE providers.
- ITE students could usefully experience school placements that offer opportunities to bridge 'special' and 'mainstream' provision and identify strategies for promoting effective learning behaviour.
- It would be useful for 'relationship management' to be addressed through the ITE curriculum for trainee teachers. Relationship management skills for pupils could be enhanced through greater integration of the academic and social curriculum.

Implications for research

(Detailed in Chapter 5, section 5.3.3)

- It would be useful to compare findings from this systematic review with other forms of engagement with the literature: that is, narrative reviews and non-empirical forms of enquiry.
- It would be useful to build upon this review by addressing the question: How do theories explain teaching behaviour in school contexts?
- There is a need to research whether teachers' understanding and knowledge of the theoretical underpinnings of learning behaviour leads to improvements in classroom practice.
- It is necessary to explore what kind of classroom experiences and tasks would enable trainees to improve their practices in relation to promoting effective learning behaviour.
- It is necessary to identify and develop (probably by links between mainstream and specialist settings/schools) pupil assessment that includes affective, cognitive and social indicators relevant to the development of effective learning behaviour.
- There is a need to explore further the construct of self-efficacy and associated links to resilience in school contexts; this is pertinent to both pupils and teachers.
- It would be very useful to identify the early years precursors of effective learning behaviour.
- An exploration of gender difference in learning behaviour in school contexts may help to explain and address why behavioural problems are more prevalent in males.
- It would be useful to examine the link between teacher behaviour and the development of effective learning behaviour by pupils.
- It could be important to examine the relationship between learning behaviours and ethnicity, and to examine if school and teacher perceptions fit those of the pupil and parent/guardians.
- It would be pertinent to address the question: How can we better understand disruptive/problem behaviours in relation to effective learning behaviours?

1. BACKGROUND

This chapter provides the aims and rationale, and places the review in the context of current policy and practice for behaviour management in schools. The focus on the chapter is the relationship between learning and behaviour. This provides a background for the promoting of effective 'learning behaviour' as the foundation for effective behaviour management. A conceptual model for the understanding of learning behaviour developed by the review team is explained. This model seeks to address individual, curricular and social relationships that impact upon of learning behaviour in school contexts.

1.1 Aims and rationale for the current review

Initial teacher education (ITE) is a crucial focus for action in the area of behaviour management as it provides a unique opportunity to establish the foundations for effective practice. It is anticipated that improvements in training for behaviour management in school contexts will impact on teacher retention, contribute to capacity building for diversity and inclusion in schools, enhance the efficacy of curricular approaches in raising standards, and address media-led concerns about standards of behaviour in schools. Behaviour has been the focus of considerable research, publication and professional development in the field of education. Consequently, there is a plethora of information and strategies to inform those involved in teacher education and school development. However, research suggests that *'teachers adopt strategies based on ideology, common sense or school based effectiveness but rarely on evaluated effectiveness'* (Olsen and Cooper, 2001). In the light of these findings and in the knowledge that the development of behaviour management in schools often focuses on strategies and structures (Harden *et al.*, 2003), it was decided that the review could best support ITE tutors by:

- a focus on the purpose and *outcomes* of behaviour management (i.e. the promotion of effective learning behaviours)
- an emphasis on the theoretical underpinnings of behaviour management in school contexts
- consideration of a conceptual framework for learning behaviour that is manageable without being reductionist; such a framework would allow trainees to explore and understand the determinants of learning behaviour and make sense of, and evaluate, the efficacy of the many strategies offered to them during their training.

Aim of the review

The overall aim of the review was to inform ITE tutors about the theoretical underpinnings of learning behaviours in school contexts in order to enhance ITE in behaviour management for trainees.

The review question posed was:

How do theories explain learning behaviour in school contexts?

1.2 Definitional and conceptual issues

1.2.1 Theoretical perspectives on behaviour in school

Theoretical perspectives on behaviour in schools have tended to be dichotomised into addressing either:

'What is the best way to respond to children who behave or learn inappropriately?'

or

'What is appropriate behaviour for a child?' (Monk, 2000)

In answering the first question, theory has been used either to inform or explain problem behaviour. A range of theories have been employed which can crudely be classified into those that either address individual within child differences (e.g. developmental, biological theories) the individual's response to their environment (e.g. affective, cognitive, behavioural), or social constructivist theories that reflect the dynamic interaction between the individual and his/her relationships and environment. In essence, these theories enable teachers to 'explain' behaviour at different levels and select strategies accordingly (see Table 1.1).

Table 1.1: How off-task behaviour might be explained and addressed

Frequent behaviour	Theory	Explanation examples	Action
Off-task	Behavioural	Child is getting more attention by being off-task.	Reward on-task behaviour
Off-task	Cognitive	Child thinks he is unable to do the task.	Encourage child to reappraise task, identify what parts of the task he can do, etc.
Off-task	Affective	Child fears failure.	Circle time to build self-esteem; offer increased adult or peer support.
Off-task	Social/ environmental	'He has a brother who is just the same.'	Possibly nurture group or work with parents
Off-task	Biological	Perhaps the child has attention-deficit/ hyperactivity disorder (ADHD)?	Refer for medical assessment.
Off-task	Developmental	Child is not ready to work independently.	Allocate learning support assistant (LSA) support and set more suitable learning challenge.

There are also theoretical perspectives on what constitutes appropriate 'normal' teaching and learning interactions (Cooper and McIntyre, 1995), and informs

'what is appropriate behaviour for the child'. Of concern to many researchers (Platten, 1999) is the match between theory development for effective learning and externally imposed teaching guidance and learning expectations: for example, the National Literacy Strategy (Department for Education and Employment (DfEE), 1998), or the National Curriculum (Qualifications and Curriculum Authority (QCA)/Department for Education and Skills (DfES), 2003).

Central to contemporary models of learning behaviour is recognition of the notion of hierarchies of learning in which knowledge acquisition is regarded as a lower order skill moving up through comprehension, application, analysis and synthesis. Pupil learning behaviour is reported to be influenced by the type of learning outcomes: for example, performance versus mastery learning emphasised by their teacher, the school and the wider social and political arena (such as boys' under-achievement in literacy). Models of learning, based on the concept of multiple intelligences (Gardner, 1993), question the judgement that two types of learning – that is, logical-mathematical and linguistic – should be selected as being a 'valid' measure of educational outcomes at the expense of valuing other forms of intelligences (specifically, musical, spatial, intra-personal, etc.). Theories and perspectives that seek to identify, and match, learning and teaching styles also claim that there is an unequal balance within schools in respect of teaching styles that may have an adverse effect on pupil performance and self-esteem. Sternberg's theory of mental self-government (1997) suggests that there is a 'preponderance of the executive style of conforming and implementing in schools and a marginalising of the legislative more creative style'. Theory contributes to the view of learning as a complex 'interweaving of language, interaction and cognition' (Bruner and Haste, 1987), and that how a child attributes meaning to school learning are important determinants of behaviour (Clark, 1986). Learning is thus considered to be significantly determined by an individual's self-esteem, self-belief, expectations and the quality of school-based relationships with adults and peers. These models support a transactional theory of learning as proposed by Vygotsky (1987) and implies that pupils and teachers need to develop appropriate affective, cognitive and social behaviours for effective learning to take place in school contexts.

Theoretical perspectives on learning behaviour stress that it is complex, diverse, based on interactional processes and has multiple valid outcomes. It follows that, if educational professionals ignore theoretical and underlying evidence bases for effective learning (e.g. deliver a curriculum biased towards pre-set, age-normed learning outcomes), there is an increased risk that individual pupils may develop behaviours such as 'disaffection' or 'disruption'.

In many instances, policy has not been blind to the complexities of learning, its interaction with behaviour, and the need to adopt a holistic view of learning and social participation. Much documentation from the Office for Standards in Education (Ofsted), DfES and Teacher Training Agency (TTA) refers positively to this wider view of learning enhancement. However, when educators interpret government policies and attempt to make manageable responses, there has been a tendency to 'select out' or 'prioritise' areas for school development which has led, at times, to bias and imbalance. It is important that trainee teachers adopt a balance between 'what we are required to teach' and 'what we know about learning behaviour', and additionally balance the demands of subject teaching with strategies for supporting learners' personal growth and achievement. Strategies to support trainee teachers in this endeavour would

include making research on learning behaviour accessible to them, and affording opportunities for critical review and evaluation of their practice.

This background material has sought to identify areas pertinent to developing a research question for a systematic review on behaviour management. This review is undertaken in the context of providing information for use by ITE providers, such that teacher training in the area of behaviour management might be enhanced.

Synthesis of background material suggests the following:

- Learning and behaviour should be linked via the term 'learning behaviour' in order to reduce perceptions that 'promoting learning' and 'managing behaviour' are separate issues.
- It would be useful to offer teachers a conceptual framework for 'learning behaviour' that is manageable without being reductionist. Such a framework would allow trainees to explore and understand the determinants of learning behaviour and make sense of, and evaluate the efficacy of, the many strategies offered to them during their training.
- Although there is an existing knowledge base for the theoretical underpinnings of learning and teaching, and behavioural difficulties, there is a need to examine the extent to which theories can explain learning behaviour in school contexts where learning takes place in groups.

Hence the research question for this review is:

How do theories explain learning behaviour in school contexts?

Learning behaviour is a necessarily complex construct. Any conceptual model designed to explain the dynamics of learning behaviour in school contexts is likely to be simplistic and open to challenge. However, it is necessary for this review to use an underpinning model and desirable that such a model should be accessible to trainee teachers and their tutors. The conceptual framework arising from this background section is described below. At the centre is the construct 'learning behaviour', which can be seen to arise from the learner's relationships (transactional, dynamic, changing):

1. Relationship with self
2. Relationship with the curriculum
3. Relationship with others, including teacher and peers

For modelling purposes, 'learning behaviour' is housed within the triangle of 'school context' but is influenced by outside factors such as family, policies, culture/community and outside agencies. This model is transferable and manageable and reflects a systemic approach to behaviour management.

Possibilities for teacher training in using this model would be that trainees are encouraged to examine pupil's learning behaviour from the following perspectives:

1. **The perspective of the child:** For example, how is he/she 'making sense' of the learning environment and outcomes? How is this interpretation and perception influencing the individual's learning behaviour in school? How

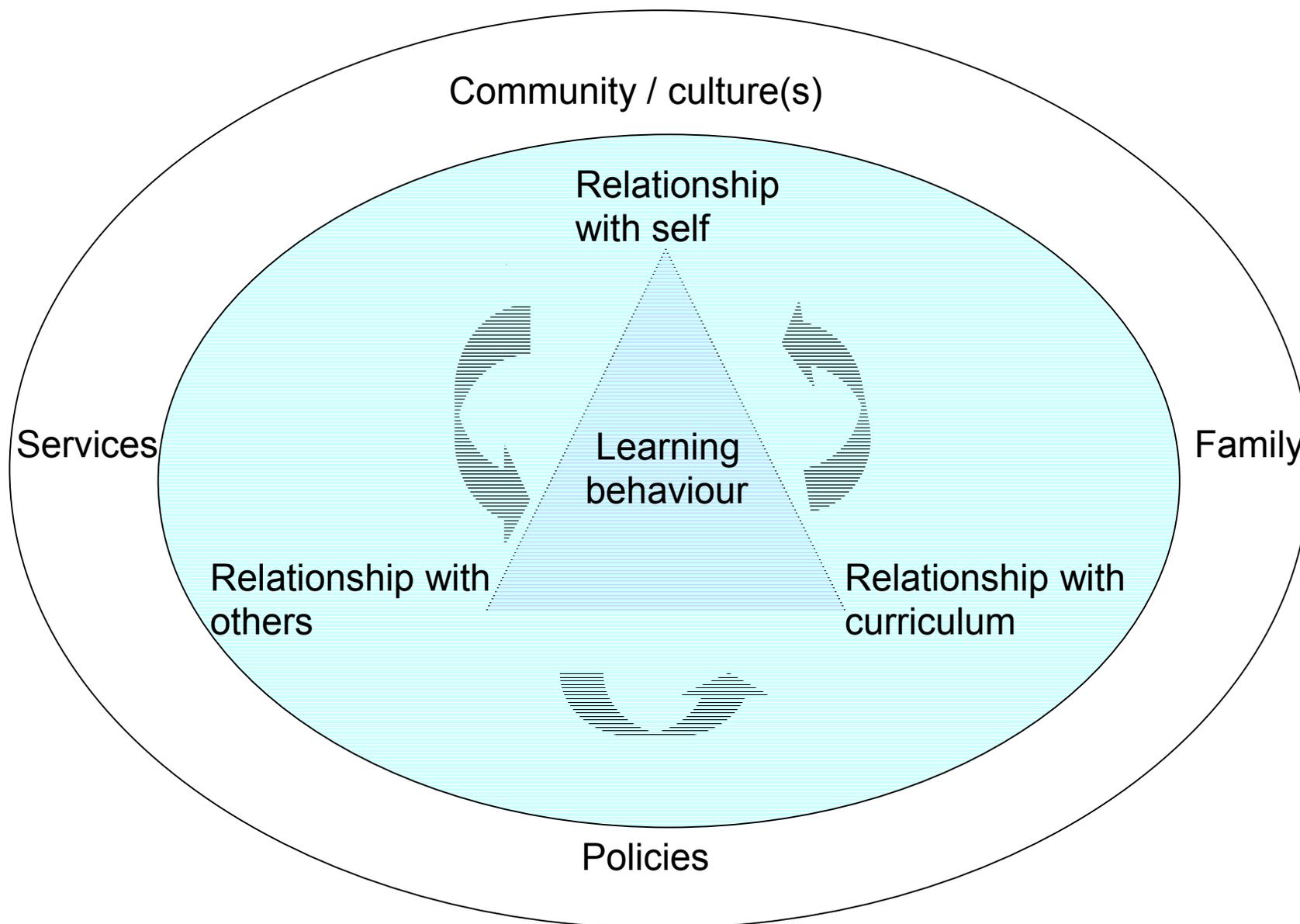
might the pupil be encouraged to consider alternative perception/views if their own perceptions are resulting in negative learning behaviours?

2. **The perspective of the curriculum:** How does the child relate to the curriculum? Do they find it accessible? Manageable? Understandable? Interesting? Motivating? etc. What adjustments might be made to assessment, curriculum content and delivery that may impact positively on the pupil's learning behaviour?
3. **The perspective of social relationships:** How does the teacher relate to the pupils? How is this expressed in his/her delivery, expectations and response to pupils' behaviour and learning? How might changes be made to improve learning behaviour and effective social participation (i.e. pupil grouping, collaborative tasks, etc.).

Such a model not only reflects the complex interactions involved in learning behaviour, but also allows trainees to consider and address the components of these complex interactions in a way that is manageable. It is likely that teachers in training will initially find it easier to tackle 'curricular' relationships and make modifications to 'what' they are teaching than they might do in observing and changing their own behaviour in classroom contexts – that is, 'how they teach'.

The use of such a model has implications for ITE in terms of knowledge and understanding of the determinant of learning behaviours, assessment practices, relationship management, and social contexts for learning and planning that seeks to integrate social and academic components of the National Curriculum.

Figure 1.1: Conceptual framework – for learning behaviour in school contexts



1.2.2 The link between behaviour and learning

Newly qualified teachers (NQTs) are required to 'promote good behaviour' (qualified teacher status (QTS) Standards S2.7 DfES/TTA, 2002) and 'Manage Behaviour' (QTS S3.3.9). In reality, these two activities are not distinct and involve a dynamic interaction between the learner, the teacher, the environment and the curriculum.

Teachers who separate specific behaviours from the learning context (for example, 'off-task behaviour') and interpret them as 'barriers to learning' will run the risk of adopting a fragmented approach to behaviour management that may have a limited effect on learning. Conversely, both teacher and learner behaviour can be seen as an integral part of the overall learning process involving bi-directional transactions (Shavelson *et al.*, 1986). The separation of learning from behaviour can lead to teachers making assumptions about academic ability based on the child's social behaviour and vice versa. This separation of knowledge bases can result in NQTs searching for solutions in separate places. Thus, the concept of 'learning behaviour' may provide a useful focus for increased coherence for ITE tutors and mentors who seek to enhance training in behaviour management for their trainees

1.2.3 Individual perspectives on behaviour management

Individual perspectives on behaviour can be allied to a range of interacting perspectives (i.e. biological, psychological and social).

Biological perspectives rooted within a medical deficit model attribute individual behavioural difficulties to internal constitutional factors, such as 'delay', 'difference' or 'disability'. This is a perspective often applied to individuals with special educational needs (SEN), such as learners with autism or ADHD. Those who attribute a child's behavioural difficulties to these internal 'fixed' factors may, on the one hand, adopt a more tolerant and understanding approach, but on the other, risk ignoring the fact that learning behaviour results from the *interaction* of the individual with his/her environment. The teacher plays an important role in working with the pupil in order to create conditions and contexts that are conducive to developing appropriate learning behaviour, including self-regulation and social participation.

Psychological perspectives on individual behaviour are concerned with the way in which individuals 'make sense of their world' in order to make it manageable for themselves. For example, during early development, it is thought important that the individual makes an appropriate attachment to a parent or caretaker (Bowlby, 1979). It is believed that those children who are secure in their relationships with others on school entry find it easier to cope with the shared attention, group learning and disciplinary demands that characterise school contexts than individuals who have experienced discordant or disrupted rearing. For example, a child may have 'constructed' from his experiences that he is more likely to fail than succeed in literacy. He thus exhibits behaviour (distracting others, not getting started, etc.), which ensures that his belief of himself as a learner is preserved. 'Psychological' perspectives on individual behaviour are concerned with the way in which individuals perceive and react to their world and how their affective responses impact upon cognitive processing and learning behaviour (Cooper and McIntyre, 1995). Within educational settings, these perspectives have driven the development of a range of strategies and initiatives, including

those concerned with self-esteem, motivation, self-regulation and emotional intelligence. Social perspectives on individual behaviour are concerned with explanations linked to the response of the individual to his/her social environment. Traditionally, many 'explanations' for individual behavioural difficulties have been linked to social disadvantage (i.e. poverty, social class, etc.). More recently, differences in behaviour and attainment considered to be socially constructed include those attributed to ethnicity and gender. Individual perspectives on behaviour do not fall neatly into either biological, psychological, or sociological, and most professionals accept that explanations for individual differences in behaviour are likely to be multifaceted. However, teachers are faced with a range of divergent explanations offered by different agencies; that is, the same behaviour could be 'explained' differently by health professionals, social workers, educational psychologists, clinical psychologists, etc. Thus, in one school placement, a trainee teacher might be encouraged to adopt a behavioural approach and 'ignore' attention-seeking behaviour; in another placement, a trainee might be exposed to the benefits of nurture group activities. This might be because those involved in researching behaviour are seeking the 'true' or 'right' explanation for observed behavioural differences and seek to defend or prove the validity of their chosen perspective.

The move towards a multi-systemic approach (Thacker *et al.*, 2002) recognises the interactional and relational aspects of childhood that contribute to learning behaviour. Such an approach also involves an appreciation of the influence of personal and individual developmental factors. If this view were adopted, then the trainee teachers would not seek to align themselves to either a biological, psychological or sociological perspective or indeed, a particular set of strategies. Instead, they would use a range of perceptions (i.e. the viewpoints from the child, the parents, teachers, peers, etc.), and a range of knowledge bases (i.e. subject knowledge, pedagogical knowledge, knowledge about culture and community influences) in order to understand the individual's behaviour in the school context and arrive at an agreed plan of action. This plan could employ, where appropriate, conventional behavioural or cognitive strategies directed towards changing the individual's behaviour. It would seem important therefore that trainee teachers are exposed to the range of perspectives that inform individual pupil behaviour and have an underlying knowledge base about influential conditions and contexts.

1.2.4 Curriculum approaches and learning behaviour

There are significant variations in the way in which subjects are taught within the curriculum and the way in which subject teachers use strategies with learners that are more or less specific to their subject (Florian and Rouse, 2001). There has been concern in recent years that predominantly prescriptive curricula and national testing is demotivating and inherently at odds with what could be described as spontaneous learning behaviour. At the very least, a prescriptive, content-based curriculum could be said to contribute significantly to disaffection, disruption and difficult behaviour. Although 'clear goals' (targets) are considered to be an important component of effective pedagogy (Ireson *et al.*, 1999), the current emphasis on pre-decided measurable outcomes linked to pre-decided given strategies is not supported by research (Deforges, 2001). Research into literacy learning suggest that pupil involvement in learning, active experimentation with a range of strategies, and the opportunity for learning to 'occur' are crucial (Grainger and Tod, 2000) components of effective literacy teaching. Above all, the setting of targets must be seen by the learner as relevant

if they are to help effect change and increase participation in the learning process. The targets should therefore be derived directly from the identified needs of the learner. In addition, it is crucial that the learner is involved in planning the targets so that they have a sense of 'ownership' and can commit to them.

It would seem useful in an educational era when standards are being addressed by prescribed, timed, age-referenced learning outcomes, to examine further the effect this has on 'learning behaviour' – both positive and negative. There is support for a transactional approach to teaching and learning – with learning heightened when student and teacher concerns and interests are integrated (Cooper and McIntyre, 1995). There is also support for raising standards and giving learners clear learning goals and behavioural boundaries. This underpins the dilemma between promoting performance or mastery learning, and the choices teachers face in adopting consequent teaching and assessment styles. For ITE students and their tutors, an emphasis on construing 'learning behaviour' to be more than the attainment of a prescribed learning outcome may be useful in identifying the impact of *how* the curriculum is delivered and assessed on the learner behaviour. Strategies vary across the curriculum subjects (Florian and Rouse, 2001); for example, English teachers are reported to be more likely to consult with pupils on their preferred learning style and to use peer-tutoring, scaffolding and meta-cognitive activities.

The National Curriculum website (QCA/DfES, 2003) proposes that personal and social education and the social skills that are contained within it can pervade all aspects of the curriculum and give guidance in different curriculum areas. The range of cross-curricular skills and themes described therein are fundamental to the maintenance of effective learning behaviours. It is possible to promote good learning behaviours through subject-based approaches, by extracting behavioural or emotionally intelligent 'themes' from the existing subject curriculum. This can be done using metaphor, stories, and depersonalising emotional or behavioural difficulties (such as bullying) through history, literature or physical education. This integrated the approach to the curriculum, where personal, social and emotional issues and learning should be embedded within the whole fabric of the school. Effective schools report that using the formal curriculum as a vehicle for achieving PSD/ behavioural targets are by far the most successful approach (Aberdeen University, 2003).

1.2.5 Social contexts and relationship management

Developing good learning relationships is fundamental to effective teaching (Evans, 1996). Moreover, learning behaviours are integrated components of the classroom rather than fragmented attributes of the child (Cornwall and Tod, 1998; Corrie, 2002; Elton Report, 1989). The social context of the classroom has long been researched and the importance of wider influences on learners' behaviour should not be ignored. Teachers maintaining a broad view of learning behaviours forms the basis of 'ecosystemic' approaches (Bronfenbrenner, 1989), where the wider contexts of an individual's interactive relationships in social and cultural context of school and classroom are seen as part and parcel of developmental and learning processes.

Case study research suggests that the quality of the relationship between teacher and learner is very significant (Pester, 2002). There is some evidence (Prawat and Nickerson, 1985) that teachers who combine orientations that are both

'affective' (focusing on personal relationships) and 'cognitive' (focusing on academic skill acquisition), may produce more positive student effects, less competitiveness and less friction. Both this study and that of Serow and Solomon (1979) suggest that children are more likely to develop positive attitudes and behaviours when they experience positive relationships with their teachers. Teachers' self-perception of their skills and confidence is an important consideration for relationships management in the classroom. A consequence of lack of confidence could result in less skilled teaching and increased possibility of disaffection and challenging behaviour in the classroom.

Active learning – that is, of the kind that is to be encouraged if learners are to be motivated and take responsibility for their own achievements – asks learners to be self-motivated and collaborate with others to construct their knowledge (Corrie, 2002). Moll and Whitmore (1998, cited in Corrie, 2002) describe teacher roles during active learning as:

- guide and supporter
- active participant in learning
- evaluator
- facilitator

All these activities are part of the relationship between teacher and learner but in addition, there are many more or less obviously definable or measurable facets to the relationship, such as the ability to 'encourage' the learner (Merrit, 1994). Furthermore, the concept of 'responsive instruction' (Castelijns, 1996), described as instruction which increases engagement, appears to be based on the central notion of a two-way 'responsive' relationship between teacher and learner. It is typified when teachers:

- show they are available for support and instruction
- are willing to take the learner's perspective on work problems
- support the learner's competencies
- challenge the student to be active and responsible in choosing, planning, executing and evaluating the activity and its outcomes (Castelijns, 1996)

Involving learners in the planning of their study or learning objectives is not a new strategy and is reaffirmed in the most recent *Code of Practice* (DfES, 2001). The benefits to learners range from 'ownership' of targets to more accurate judgements, and hence assessment, of their own performance (Munby, 1995). To achieve this kind of learner involvement pre-supposes an encouraging and positive relationship between teacher and learner.

Relationships with peers are also considered to be important factors in school learning. In recent years, an emphasis on inclusive educational environments has resulted in increased heterogeneity in classrooms and schools. Research indicates that traditional whole-class instruction – that is primarily teacher-directed and presents to all class members uniform, academic tasks and uniform ways of performing – is inappropriate as a primary mode of instruction in heterogeneous classes since it fails to cope with the differences between pupils in terms of needs and abilities (Ben-Ari and Shafir, 1988). Vygotsky (1962) emphasised the pivotal contribution of social interaction to cognitive development and the view that cognitive development is a process of continuous interplay between the individual and his/her environment. It follows that classroom groupings for teaching and peer relationships could have a significant impact on learning. While debate continues about the impact of homogenous and

heterogeneous classrooms on learner outcomes (Halliman, 1990), it is important for teachers to recognise and foster the possible mechanisms through which grouping may lead to improved learning behaviour: that is, modelling effective learning through observation; cognitive restructuring through discussion, integration of new material into one's own knowledge base by collaboration on group projects, enlarging the range of possibilities and strategies by group or pair problem-solving, etc. (Hertz-Lazarowitz and Miller, 1992). A contributing factor in the inability of some learners to engage in appropriate learning behaviours in the classroom could be described as a lack of appropriate social and inter-personal skill repertoires or school competencies (Corrie, 2002). In addition, children who have had good early experiences at home and who are 'securely attached' (Crittenden, 1992) exhibit a range of sensibilities that support positive learning behaviours. Amongst these are:

- high feelings of self-worth
- a robust sense of self
- self-reliance
- autonomy
- a positive view of the world
- a sense of personal power

By contrast, pupils with insecure attachments will require a positive relationship with an adult and much supporting encouragement in order to be able to engage with the tasks at hand.

1.3 Policy and practice background

1.3.1 Behaviour management and ITE

Recent developments in educational policy reflect the UK government's continuing commitment to raising the standards of students' achievement; promoting increased social and academic inclusion; and fostering widening participation in lifelong learning (DfEE, 2001a; DfEE/QCA, 1999). Embedded within this backdrop of emergent changes in policy is an enduring concern surrounding 'behaviour management' in schools. If the government's academic and social aspirations for society are to be met, it is crucial that behaviour conducive to effective learning and social participation is promoted within school contexts. Teachers are ideologically supportive of inclusion (Avramidis and Norwich, 2002) but express reservations about the inclusion of pupils with behavioural difficulties. Behaviour problems in schools are perceived to have an adverse effect on teacher retention. Media coverage supports a view that disaffection and disruption is on the increase in spite of encouraging reports to the contrary (Times Educational Supplement (TES), 2003).

The government is committed to tackling behaviour in schools via a range of initiatives⁴. Since the introduction of National Standards (TTA, 1998), there has been an emphasis on improving teachers' efficacy and confidence via the achievement of prescribed competencies. In spite of these changes in training and a raft of publications offering teachers practical support, NQTs continue to

⁴ Reported at the TTA behaviour event in March 2003, including the setting-up of a professional Resource Network for Behaviour (TTA) and DfES Behaviour and Attendance service training for schools

express concern about their ability to deal with behaviour problems. Discussions with NQTs and analysis of QTS guidance documentation suggest that factors likely to impact upon initial teacher training for effective 'behaviour management' may include the following:

- A trend over time for teacher training to move from a developmental curriculum toward a subject-based curriculum. This may have resulted in ITE trainers having less time to cover pedagogical issues that underpin practice (Alexander 2004).
- A tendency for some ITE trainers to address behaviour management separately from subject knowledge. This supports a perception that 'behaviour management' is a reactive process that may be required in order to achieve the necessary compliance and control for effective subject teaching and learning.
- Behaviour management being delivered in the context of SEN provision, and the *Code of Practice* (DfES, 2001) supporting a view that it is 'additional or extra to' that provision normally afforded mainstream peers.
- In practice, intervention for pupils with behavioural difficulties is rarely evidence-based (Walker *et al.*, 1995). Thus teachers may adopt strategies either on the basis of ideology, common sense, or school-based experience, but rarely on evaluated effectiveness (Olsen and Cooper, 2001). This may lead to 'trial and error' use of existing strategies rather than the development of approaches based on appropriate assessment, a coherent framework and a supporting knowledge base.

This suggests that there is a need to provide a more coherent approach to behaviour management via an explicit linking of 'subject knowledge' and 'behaviour' by those involved in teacher training. Additionally, ITT could be enhanced by the provision of conceptual frameworks for behaviour against which trainees could locate and evaluate the efficacy of the many strategies they are advised to use.

While disaffected, disruptive, aggressive and anti-social behaviour may be the perceived focus for behaviour management within ITT (Jones, 2003), research suggests that it is a plethora of essentially normal behaviours that is the main day-to-day concern of teachers: that is, talking out of turn, work avoidance, hindering other students, fidgeting and making noises (Elton Report, 1989). Thus it seems that it is often not the behaviour *per se* that is problematic (that is, talking out of turn) but the frequency and intensity with which this 'normal' behaviour is inappropriate for the learning context. This points to a need to examine 'learning behaviour' within school/group contexts. It is appropriate to emphasise behaviour management within ITT in the light of evidence that schools can make a difference (Cooper *et al.*, 1994) and build resilience (Wang and Gordon, 1994) for learners whose behavioural difficulties have hitherto been mainly attributed to individual, family and cultural pathologies.

1.3.2 Educational approaches to behaviour management

Historically, there has been a swing from a medical approach in which the cause of a pupil's behavioural difficulties was seen as rooted within the child and with 'treatment' involving placement in special school settings or therapy at child

guidance clinics. Therapeutic approaches viewed problem behaviour as arising out of failures of early experience and placed an emphasis on building relationships and self-esteem. This was often separated from the context of the classroom and educational achievement. The pervading dominant position is now one in which an individual's behaviour is seen as developing from a network of relationships and contextual factors (Thacker *et al.*, 2002). As such, the child develops behaviour that is adaptive and meaningful to them, and offers some resilience to their personal circumstances. It follows that identification, assessment and intervention are continuous processes that seek to examine learning behaviour in context.

Following government advice via Circular 2/75, education professionals, in particular educational psychologists, were brought in to redress the balance between medical and educational approaches, and to promote a swing from psychodynamic to behavioural approaches. These approaches were often characterised by an emphasis on antecedents, behaviours and consequences (ABC), brought schools and their teachers into frameworks for intervention, and ensured that behaviour management had a place in the ITT curriculum. Although behavioural approaches were successful in many cases, it was accepted that cognitive and affective factors also contributed to pupil behaviour and needed to be recognised in intervention programmes (for example, some pupils opted 'not' to behave and others were unable to regulate their behaviour). This triggered the need for educationalists to develop alternative or additional interventions, namely cognitive-behavioural approaches and personal development approaches based on humanistic psychology. Recently, in mainstream schools, there has been a shift towards systemic viewpoints, particularly eco-systemic, that asserts that human development cannot be viewed in isolation but from the wider contexts of an individual's interactive relationships in social and cultural contexts (Bronfenbrenner, 1979). Such a view is in contrast to the relative simplicity of behavioural approaches and requires that teachers are aware of the external and internal influences on behaviour. Teachers need to be enabled to conceptualise, and work with, the range of individual developmental and social situational factors that impact upon classroom learning behaviour. The need for teachers to acquire *principles* for behaviour management that are generalisable and strategies that are *manageable* continues to provide a challenge for ITT providers and their partnership schools. Ecological perspectives also require that behaviour and learning are operationalised through whole-school approaches and collaborative practices between teachers and other professionals.

1.4 Research background

Behaviour has been the focus of considerable research, publication and professional development in the field of education. Consequently, there is a plethora of information and strategies to inform those involved in teacher education and school development. However, in spite of the amount of information available, research findings confirm that behaviour management is an area consistently identified by NQTs as an area of professional expertise where trainees feel they would benefit from greater support as they enter teaching (Buell *et al.*, 1999; Cains and Brown, 1996, 1998a, 1998b; Gallio and Little, 2003; Moses, 2003). Pertinent to this review is concern that the educational model of emotional and behaviour difficulties, articulated following the medical model and embodied within the 1994 Code of Practice, is being developed in such a way that the problem of 'disturbing' pupils is being addressed by reference to

sociological models within a school disciplinary framework: *'the ostensible problem – that which is in need of 'educational' response – is disorderly behaviour and disaffection, and the goal is the inculcation of disaffected individuals into the social-moral order of the school . Towards this goal, pupils may be excluded to sites such as a Pupil Referral Unit, which could be regarded as a type of rehabilitation facility'* (Jones, 2003, p 148). This change of focus for pupils who refuse to study, are frequently absent, hostile or disruptive, places the responsibility on the school to create an environment for quality learning, even when it means excluding troublesome pupils. While such a model has utility for standards raising and teacher retention, it is more compatible with normalisation than inclusion and ignores reference to the individual pupil's life history: *'all teachers in special schools know many children whose disturbing behaviour can be reasonably viewed as a normal , or even healthy, reaction to highly abnormal and stressful conditions in their families or even in their previous schools'* (Galloway and Goodwin, 1987). Jones (2003) argues that the educational model lacks theoretical underpinnings, does not frame disaffection and disruption in some understanding of human nature, and consequently has resulted in what could be likened to an intuitive working model, that is, a set of principles regarding pupil support. Research concerning the lack of theoretical underpinnings that inform educational responses to learning behaviour, coupled with research that suggests that the most effective classroom managers are teachers who are most confident in their abilities (Housego, 1990, Martin *et al.*, 1999; Pajares, 1992; Safran, 1989) triggered this review to focus on the theoretical underpinnings of learning behaviour as a way of building a knowledge base intended to enhance trainee teacher's confidence in behaviour management.

1.5 Authors, supporters and users of the review

The review was supported by the TTA in order to provide an evidence base for the improvement of teacher training in behaviour management. NQTs are required to 'promote good behaviour' (QTS Standards S2.7 (DfES/TTA, 2002)) and to 'manage behaviour' (QTS S3.3.9). It is important therefore that ITE tutors are supported so that training in behaviour management is improved. TTA survey data on NQTs reflect that teacher training needs to be improved in this area if NQTs are to feel more confident and competent in managing behaviour in school contexts. The government is committed to tackling disruptive behaviour in schools via a range of initiatives⁵. ITE is a crucial focus for action in this area in that it provides a unique opportunity to establish the foundations for effective practice. It is anticipated that improvements in training for behaviour management in school contexts will impact on teacher retention, contribute to capacity building or diversity and inclusion in schools, enhance the efficacy of curricular approaches in raising standards, and address media-led concerns about standards of behaviour in schools.

The users of the review are ITE trainers. Given the increasing range of routes to teacher training, it is anticipated that findings can be applied to the variety of training contexts and tutors/mentors.

⁵ Reported at the TTA behaviour event in March 2003, including the setting-up of a Professional Resource Network for Behaviour (TTA) and DfES Behaviour and Attendance service training for schools

The authors of this review are from Canterbury Christ Church University College and are actively involved in research, teacher training, behaviour management, special educational needs and inclusion. Canterbury Christ Church University College's expertise in ITE has consistently been recognised by Ofsted gradings.

1.6 Review questions

The review question emerged from the underlying conceptual model adopted by the researchers and the prescribed need for the review to be of use to tutors in enhancing ITE for behaviour management:

How do theories explain learning behaviour in school contexts?

In order to answer the review question it was necessary to address the component questions:

- To what extent has research into theoretical explanations of learning behaviour been focused towards ITE?
- How have theories been used to explain learning behaviours in school contexts?
- What kinds of theories have been used to explain learning behaviour in school contexts?
- What learning behaviours in school contexts have been explained by theories?
- To what extent are learning behaviours linked to curricular areas in school contexts?

Other questions considered by this review are:

- To what extent do the review findings support the conceptual framework that underpinned the review question?
- What evidence is there from the review that could be applied to the promotion of effective learning behaviour in school contexts?

2. METHODS USED IN THE REVIEW

This chapter describes in detail the process that was followed in order to identify, screen, describe and draw evidence systematically from recent research reports. The search strategy, inclusion and exclusion criteria, and keywords that were used in the review process are also explained. The chapter concludes with a description of the quality assurance procedures that were undertaken in collaboration with the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre).

2.1 User involvement

2.1.1 Approach and rationale

The involvement of key stakeholders in refining the research question and conceptual framework was vital in order to meet the broad aim that the review should ultimately contribute to the enhancement of ITE and to augment the knowledge and understanding of beginning teachers in relation to behaviour management. Teacher trainers, trainees, beginning teachers and the TTA were identified as key stakeholders to contribute to this review. It is recognised that school students and parents would also be stakeholders but the time given for the review did not allow for them to be involved in refining the research question.

2.1.2 Methods used

A survey was conducted by emailing all ITE tutors in the Faculty of Education at Canterbury Christ Church University College (120 staff) to enquire about their perceived needs for improving training for the management of behaviour in school contexts. Responses were made electronically or personally, such that a flavour of requests was gathered.

1. Responses revealed a wide range of requests, such as the following:

'I would like case studies dealing with behaviour at an individual, class and school level; managing behaviour integrated into whole-class practice, case studies where pupils are asked why they misbehave, perceptions of poor behaviour? How does this skew the way the teacher and pupil interact' (CJC).

'Fostering self-esteem, emotional literacy, responsibility and resilience, conflict resolution' (JC).

'Strategies for managing disruptive behaviour in mainstream classes; strategies that work when you think you have tried everything, not allowing the rest of the class to be disrupted by other children, managing immature behaviour when you know that behaviour is related to developmental level' (CA).

'ADHD, behaviour management and able pupils, self-harming' (KJ)

2. Topics identified by respondents included affective, cognitive and behavioural approaches to managing behaviour plus an acceptance that behaviour management should be included within subject teaching and whole-school policies.

Year 4 NQT students (15) from Canterbury Christ Church University College who had opted to do an extra specialist year of study (in this case SEN) were consulted throughout this project and suggested that it would be helpful to them if:

- there was more training in behaviour management throughout their ITE course
- there were opportunities for placements in specialists EBD settings
- behaviour management was integrated into subject teaching
- there was some National Guidance (as is the case with the National Literacy Strategy) that could be used as an easily accessible resource material for behaviour management to which they could refer when problem situations arose

It is accepted that 'user involvement' in this review was necessarily limited due to the timeframe of the review. Although a 'flavour' of the responses helped the Review Group to frame the research question, the opinions sampled are not considered to be representative of the population of ITE tutors to whom this review is targeted. The main source of user involvement was from the TTA who funded this review based on need identified from national sources, including their NQT training satisfaction survey.

2.2 Identifying and describing studies

The review aimed to identify as many empirical studies as possible that answered the research question. The search and retrieval, screening, inclusion and exclusion, keywording and mapping of included studies followed EPPI-Centre guidelines (EPPI-Centre, 2002a, 2002b) and processes.

2.2.1 Defining relevant studies

In order to identify relevant studies, it was necessary to further define the core terms in the review question, *How do theories explain learning behaviour in school contexts?* The categories were chosen to provide sufficient depth to the search and ultimately to inform initial education, while also attempting to restrict the results of searches to a manageable quantity of evidence for the review's timescale.

The key components within the question were agreed by the review team to be 'theories', 'explain', 'learning behaviour' and 'school contexts'.

Definitions of terms

Theories were defined by reference to a range of descriptors that would be likely to cover the most commonly used theories used in the field of education.

Following discussions and an initial experimentation with electronic database search terms, the review team identified the following terms to identify theories:

- affective theories
- behavioural theories
- cognitive theories

- developmental theories
- learning theories
- social theories

During the search for studies, it became apparent that yielded citations contained little reference to theories. Consequently, the inclusion criteria relating to theories were made more rigorous (see section 2.2.3 for details).

Although the term **learning behaviour** could be translated into a series of words describing learning activities (such as 'on-task', 'motivated', etc.), it was agreed that, for searching purposes, defining studies using these individual terms would be impractical. This decision was based upon time constraints for the review process as a whole, and on the fact that each term was likely to have a large number of synonyms or phrases implying the same or similar meaning. Consequently, the terms 'pupil behaviour', 'student behaviour', 'learning behaviour' and pupil or student 'behaviour problems' were selected as descriptors for the electronic searches⁶. This enabled the review to capture both the broad focus of a range of behaviours observed within school contexts and also to recognise behaviour specific to individual learners. It was also thought appropriate to focus on descriptors using the term 'behaviour' rather than 'attainment', given that the original purpose of the review was to improve training in behaviour management within ITE.

School contexts were simply defined using the terms 'schools' and 'relationships' to represent the interactive processes fundamental to the conceptual framework of the review⁷. Schools were defined as establishments delivering educational provision for learners aged between 3 and 16 years of age. Given this age range, selected to cover the majority of pupils in state school settings, the team agreed that mainstream, special and pre-school should all be included in the term 'school'.

The conceptual framework for the review centred upon the construct of learning behaviour as dependent upon interactive processes taking place within school contexts. A dyad or group was typically expected to feature in school settings. Consequently, the broad term **relationships** was used to represent this interaction.

Since the review was being conducted with an overall aim of informing ITE, it was also agreed that the terms **teacher education** and **teacher training** should be included in the search strategy.

2.2.2 Identification of potential studies: search strategy

The search strategy (see Appendix 2.2) was designed, and later refined, in order that it would meet two key objectives: specifically, that (a) the search should be as exhaustive as possible, and (b) it should lead only to the identification of studies of direct relevance to the review.

⁶ The term 'learning behaviour' was subsequently unpicked further as inclusion criteria were refined (see section 2.2.3 for details).

⁷ More restrictive inclusion and exclusion criteria were applied by limiting electronic searches to particular educational settings of age groups.

In order to fulfil the first objective, searches were made in a number of ways: colleagues were asked to inform the team of any relevant key texts; handsearches were made of relevant journals and library catalogues; and electronic databases and websites were also extensively searched. These were as follows:

BEI (British Education Index)
ERIC (Educational Resources Information Center)
PsycINFO
ASSIA (Applied Social Sciences Index and Abstracts)
ZETOC (British Library's Electronic Table of Contents Database)
CERUK (Current Educational Research in the UK)
REEL (Research Evidence in Education Library)
Science Direct
Scottish Council for Research In Education (SCRE)
Conference proceedings (British Educational Research Association (BERA), European Educational Research Association (EERA), American Educational Research Association (AERA), Australian Association for Research in Education (AARE))
British Education Line
Northwest Regional Educational Laboratory (NREL)
REGARD (Economic and Social Research Council (ESRC))
Special Needs Abstracts

In order to meet the second objective, inclusion criteria were developed from the review question and the conceptual framework, and translated into the following search terms:

- **behaviour** (pupil behaviour, student behaviour, behaviour problems)
- **relationships** (peer relationship, teacher-pupil relationship, teacher-student relationship, pupil-school relationship, student school relationship)
- **theories** (cognitive, behavioural, developmental, learning, affective, social)
- **school**
- **teacher education/training**

A series of test searches were conducted in BEI and ERIC. Initially, individual search terms were used (for example, cognitive theories). These searches resulted in extremely high yields and it was found that many of the citations were not relevant to the review. Therefore, the search strategy was revised in two ways. Firstly, the 'limit' function was used in electronic databases. In accordance with the inclusion criteria, yields were limited to:

- studies in the English language
- an age bracket of 3 to 16 years (to capture studies that explored all key stages of the National Curriculum, and the periods of compulsory schooling in other countries)
- studies published between 1988 and 2002 (to capture research reported in the years since the inception of the National Curriculum)

Secondly, with the aim of maximising the relevance of yielded studies, search terms were combined in a string, for example: **behaviour** and **cognitive theories**, and **school** and **teacher education**. These test searches revealed that a full string yielded no results whatsoever. Through a process of elimination, it was discovered that the terms 'teacher education' and 'teacher training' were the terms that caused the 'no yield' result. These terms were removed from the strings, the searches were regenerated and, this time, yielded results. Table 2.1

shows the basic, combined searches used for electronic databases once the terms 'teacher education' and 'teacher training' had been removed.

Table 2.1: Combined search terms – search strings

(A) Behaviour or pupil behaviour or student behaviour or behaviour problems	A N D	1. Cognitive theories	A N D	School
Or		2. Behaviour theories		
		3. Social theories		
(B) Relationships or Peer relationship or teacher-pupil relationship or teacher-student relationship or pupil-school relationship or student school relationship		4. Developmental theories		
		5. Affective behaviour theories		
		6. Learning theories		

Search terms were mapped⁸ where possible or, where databases or websites did not provide mapping functions, free text searching was conducted. In the Bath Information and Data Services (BIDS) databases (BEI and ERIC), search terms were also 'exploded' to include a range of related terms, such as the following:

- Social theories or related terms: functionalism, idealism, ideology, role theory, social change, social cognition, social environment, social influences, social networks, social structure, social systems, sociocultural patterns, socioeconomic influences.
- Cognitive theories or related terms: epistemology, cognitive ability, cognitive development, cognitive psychology, cognitive structure, concept formation, developmental continuity, developmental stages, knowledge level, learning, phenomenology, Piagetian theory.
- Affective behaviour or related terms: affective measures, affective objectives; attitudes, desensitization, emotional development, emotional response, interests, prosocial behaviour, psychological patterns.
- Developmental stages or related terms: behaviour development, child development, cognitive development, concept formation, developmental continuity, developmental delays, developmental psychology, emotional development, individual development, physical development, Piagetian theory.
- Behaviour theories or related terms: attribution theory, mediation theory, counseling theories, personality theories.
- Pupil or student behaviour or related terms: anti-social behaviour, autism, behaviour disorders, behaviour problems, bullying, classroom discipline, deception, discipline, disruptive pupils, emotional problems, hyperactivity, maladjustment, mental disorders, minimal brain dysfunction, obedience, paranoid behaviour, personality problems, problem children, psychosocial patterns, psychopathology, pupil problems, self control, self destructive behaviour, severe learning difficulties, special educational needs, student problems, withdrawal.

⁸ In some electronic databases (for example, ERIC and BEI), it is possible to 'map' a search term (to the database's own lists of search terms). An alternative is to conduct a free text search. The latter is done when the database does not include the particular search term in its own lists.

- Peer relationships or related terms: bullying, collegiality, friendship, peer acceptance, peer counseling, peer evaluation, peer groups, peer influence, peer teaching, popularity, teamwork.

2.2.3 Screening studies: applying inclusion and exclusion criteria

The review question and conceptual framework provided the basis for some initial inclusion and exclusion criteria (see Appendix 2.1). To be included in the review, a study would have to be about:

1. behaviour and
2. theory and
3. school contexts and
4. relationships

and be:

5. an empirical study or review of empirical studies and
6. research conducted or published between 1988 and 2002 and
7. published in the English language

and should not:

8. be an evaluation or description of strategies for managing disruptive behaviour
9. focus on teachers' behaviour or attitudes to the exclusion of pupils

The rationales behind all of the inclusion and exclusion criteria is explained in Table 2.2.

Table 2.2 Rationales for inclusion and exclusion criteria

Inclusion criteria	Rationale
Be in the English language	Practical: It was the first language of all members of the review team.
Have been conducted/published between 1988 and 2002	1988 selected as the date when National Curriculum (Department for Education and Science (DES), 1989) was introduced. Curriculum influence on learning behaviour would thus be fairly consistent for English studies; however, this criterion did not apply to studies from other countries.
Be empirical or reviewing empirical research	The review team was advised that the EPPI-Centre guidelines were best suited to applying to empirical research.
Refer to pupils between 3 and 16 years of age	To take into account pupils in compulsory education and also those attending pre-school and nursery placements. Pre-school 'learning behaviours' were considered important because the review might have an impact on ITE for the development of proactive strategies for behaviour management within early years settings.
Be about mainstream pre-school or school contexts	Intrinsic to the review question
Refer to theory (subsequently refined – see below)	Intrinsic to the review question

Inclusion criteria	Rationale
Describe one or more of the following learning behaviours: responsiveness, responsibility, participation, engagement, communication, independent activity, self-esteem, self-regard, collaboration, motivation, disruptiveness, disaffection, other learning problems	To reflect the complexity of the construct 'learning behaviour' and its many descriptors. However, in seeking to ensure that the 'learning behaviours' identified were of relevance to ITE an analysis of QTS Standards documentation (see Appendix 2.1, tables 2.1.i and 2.1.ii) was carried out. The included terms reflect the language used in the QTS documentation to describe learning behaviour in school contexts.
Exclusion criteria	Rationales
Focus on teachers' behaviour or attitudes to the exclusion of pupils	Not relevant to the review question
Be descriptions or evaluations of strategies for managing disruptive behaviour	The team had been advised that all such studies were to be excluded on the grounds that another review team (Institute of Education) were reviewing studies with this focus.

The inclusion criteria served two key purposes. Firstly, they ensured that all included studies supported the review's aims and, secondly, that they provided a means of reducing the number of included studies to a quantity that was manageable in the review's timeframe. To be included in the review, studies would need to match *all* the inclusion criteria and *none* of the exclusion criteria.

The inclusion criteria were translated into search terms and, later, keywords. As the search progressed, inclusion criteria were increasingly important in defining the yield of studies.

2.2.4 Refining the inclusion criteria

As the search strategy became more sophisticated (that is, limited and combined), the yields of irrelevant studies decreased. Nevertheless, the final (combined) searches still yielded many studies that appeared to be outside the central focus of the review (see Chapter 3 for details) because the databases were yielding studies that, for example, were not empirical or were concerned with strategies. Later, it also became clear that the inclusion criteria needed to be further refined because the involvement of 'theory' was minimal in some cases. It was agreed, therefore, that included studies must:

1. contain *explicit* references to one or more of the six categories of theories (and also be either theory driven / testing theory, or linking results to theory); and
2. explain specific behaviours that were linked to learning in school contexts.

To inform the second condition, the team analysed 'learning behaviour' in the context of current QTS Standards (TTA, 2002). The rationale for using the 'language' contained within QTS documentation to identify descriptors of learning behaviour was that the funders of this review (that is, the TTA) sought to improve ITE for behaviour management. The Standards outline national expectations for

the attainment of QTS. The Standards were examined and descriptors pertinent to the research question extracted by the review team. (See Appendix 2, Table 2.1.i.) These descriptors were then further classified into those required by trainees, pupils and ITE trainers. This was considered appropriate, given that the review needed to take into account the needs of end-users. These descriptors have been linked to the categories of theories identified for the review – that is, social, affective, cognitive, behavioural, learning and developmental – in order to contribute to the conceptual development of learning behaviour within the context of theoretical explanations and QTS requirements.

The team then applied the refined inclusion and exclusion criteria to the studies yielded from the final searches. In some cases, only titles and abstracts were needed at this stage. In other cases, abstracts were not sufficiently informative to enable the inclusion and exclusion criteria to be applied. Full texts were sought for these studies and criteria applied to those. Full texts were also sought for all the studies included on the basis of the title and abstract, but not for studies excluded on the basis of the title and abstract (where it was clear such studies did not meet all of the inclusion criteria or met one or more of the exclusion criteria). In practice, some studies were excluded by default because they were either unobtainable or not obtainable within the timeframe.

Details of the numbers of studies retrieved and included or excluded at the various stages of the searching and screening process can be found in Chapter 3 (Figure 3.1). A list of the final inclusion and exclusion criteria can be found in Appendix 2.1.

2.2.5 Characterising included studies

After the screening process, the studies that met all the inclusion criteria and none of the exclusion criteria were 'characterised' using a series of keywording categories. This then enabled the creation of a systematic map of research relevant to the review.

The review team characterised the included studies in accordance with the *EPPI-Centre Keywording Strategy for Classifying Education Research (Version 0.9.6)* (EPPI-Centre, 2002a), details of which are given in Appendix 2.3. This strategy provides a series of categories and sub-categories related to educational contexts. The characteristics of each study were mapped into the relevant keywording categories.

In addition, the team developed five review-specific keywording categories (learning behaviours, theories, learning outcomes, SEN and relationships) each with sub-categories (see Appendix 2.3). All keywords were derived from the refined inclusion criteria and so, for the learning behaviour keywording category, sub-categories were the behaviours that had been generated through the analysis of QTS Standards (DfES/TTA, 2002).

Three of these descriptors of positive learning behaviours are not mentioned specifically in the QTS documentation. These are responsiveness, collaboration and participation. These descriptors were included to reflect the fact that the review question was concerned with 'learning behaviour *in school contexts*'. It was thus considered appropriate to include descriptors of learning behaviours that embodied the social and interactive nature of school learning. The three 'negative' descriptors of disruptiveness, disaffection and problems were included

in order to provide a broad view of learning behaviours pertinent to 'behaviour management' in school settings.

2.2.6 Identifying and describing studies: quality assurance

Search terms, inclusion and exclusion criteria, and review-specific keywords were first developed through meetings of the core team and, where possible, members of the user group. A member of staff at the EPPI-Centre supported the team at each stage.

In order to comply with quality assurance requirements, review team meetings were held at each stage of the inclusion and exclusion process. No studies were excluded outside this consultative arena. Regular meetings also enabled all members of the team to characterise 12 studies as a group, using the EPPI-Centre generic keywords and the review-specific keywords. Thereafter, six studies were keyworded in pairs. The remainder were keyworded by individual team members. All keywords were entered onto the EPPI-Reviewer® (EPPI-Centre, 2002c) online database.

To check reliability, a random sample of 20 studies was also keyworded by a member of staff at the EPPI-Centre. Discrepancies in keywording were discussed in detail until agreement was reached about the most appropriate form of characterisation. Details of the results of the quality assurance procedures can be found in Chapter 3.

2.3 In-depth review

2.3.1 Moving from broad characterisation (mapping) to in-depth review

Studies selected for in-depth review reflected the systematic nature of the review process by seeking to reflect the characteristics of the studies included in the mapping process. Given that the research question was, ***How do theories explain learning behaviour in school contexts?***, it was decided that 'theories', 'learning behaviour', 'explain' and 'school contexts' were key areas where congruence with the mapped studies should be achieved.

The keywords provided a useful source of information from which a 'map' of included studies was defined. The process of mapping involved copying keywording data into Excel⁹ in order that they could be sorted and manipulated. Later, the data were uploaded into the main EPPI-Reviewer® database, which allowed the review team to carry out analyses, such as cross-tabulations and frequency counts of keywords from all included studies. Details of the characteristics of the studies can be found in Chapter 3.

During the review process, the team met to consider all the characteristics of the studies with the aims of defining the overall map and selecting studies for the in-depth review. At this time, the keyworded studies had been logged onto the

⁹ This procedure is normally possible within EPPI-Reviewer® (EPPI-Centre, 2002c), but the function was not available at the time when the review team needed to carry out the mapping for this review.

EPPI-Reviewer® database, but had not been uploaded into the main database; consequently, it was not possible to run analyses (such as frequency counts and cross-tabulations) using the EPPI-Reviewer® online tools. An alternative method was therefore used. Excel spreadsheets were used for the purposes of characterising the studies and gaining an overall map of the research. One spreadsheet contained data from all the review-specific keywording categories and a linked spreadsheet contained data from the EPPI core keywording categories. The review team was then able to ascertain which of the included studies might be included in the in-depth review. None of the studies that reported research in pre-school settings was included. Although the age range for included studies was 3 to 16 years, the review aimed to inform ITE providers working in the fields of primary and secondary education. The age bracket had been extended to include 3 and 4 year-olds in order that studies that focused on the foundation stage might not be excluded; however, none of the included pre-school studies directly discussed the foundation stage. On reflection, it was agreed that the exclusion criteria should have been more clearly defined in relation to the key stages, rather than ages of pupils; the latter had been used so that international research that referred to alternative educational stages would not automatically be excluded. Studies were selected on the following grounds:

1. They met all the inclusion criteria and none of the exclusion criteria (as described in Table 2.2).
2. They reflected the characteristics of the systematic map, as follows:
 - Each study contained explicit reference to theories and covered those theories that were most frequently found across the whole map (i.e. social, cognitive and affective)
 - The combination of five studies reflected the wide range of learning behaviours found in the overall map. They also reflected the conceptual model underpinning the review by including learning behaviours relating to task/curriculum (i.e. engagement and motivation); learning behaviours relating to social factors (i.e. participation/communication); and learning behaviours linked to self (i.e. self-efficacy and independent activity).
 - The five studies covered the entire range of relationships contained in the review-specific keywording categories.
 - The studies explored the link between theories and learning behaviour by using either evaluations or explorations of relationships; these two categories of study type were the most common among the 46 studies.
3. They were methodologically sound as judged by:
 - reviewers' joint professional assessment
 - EPPI-Centre quality assessment procedures (see section 2.3.3)
4. They were of direct relevance to the research question(s).
5. They were concerned with the 5 to 16 years age bracket in mainstream settings.

Following the mapping and selection process, studies selected for in-depth review were re-read by core members of the review team prior to beginning the data-extraction process.

2.3.2 Detailed description of studies in the in-depth review

Two members of the team carried out the data-extraction process, using the EPPI-Centre's *Guidelines for Extracting Data and Quality Assessing Studies in Educational Research (Version 0.9.6)* (EPPI-Centre, 2002b). This process involved answering around 130 questions about the aims, rationale, sampling strategy, data-collection and data-analysis methods, results and conclusions of the studies. This was a detailed and exhaustive process of drawing information from the texts.

2.3.3 Assessing quality of studies and weight of evidence for the review question

The data-extraction process enabled a close scrutiny of the studies' designs, reliability of methods and validity of data-collection methods and tools. A final series of questions was completed at the end of each data-extraction, providing judgements as to the trustworthiness of the conclusions. These judgements were based on three aspects of each study and these were then combined to form an overall judgement about the general weight of evidence of each (non-review-specific).

Weight of evidence A

Questions relating to the weight of evidence were as follows (answer low, medium or high trustworthiness).

1. *Taking account of all quality assessment issues, can the study findings be trusted in answering the study question?* (Judgements were based on the answers to a previous series of questions about the quality of the studies' methods and data.)
2. *Have sufficient attempts been made to justify the conclusions drawn from the findings so that the conclusions are trustworthy?* (Judgements were based on the answers to a previous series of questions about the quality of reporting in the studies.)
3. *In light of the above, do the reviewers differ from the authors over the findings or conclusions of the study?* (Judgements were based on an assessment of the overall methodology and results reported, and answered 'Yes' or 'No'.)

In addition to the general weight of evidence questions, there were also questions that helped the team to assess the extent that the results of a study provided weight of evidence to answer the review question. The review-specific weight of evidence questions are defined below.

Weight of evidence B

Appropriateness of research design and analysis for addressing the question, or sub-questions, of this specific systematic review

Weight of evidence C

Relevance of particular focus of the study (including conceptual focus, context, sample and measures) for addressing the question or sub-questions of this specific systematic review

Weight of evidence D

Taking into account quality of execution, appropriateness of design and relevance of focus, what is the overall weight of evidence this study provides to answer the question of this specific systematic review?

In each case, the studies were categorised as being of high, medium or low weight. The results of the weight of evidence judgements can be found in Chapter 4.

2.3.4 Synthesis of evidence

The review set out to answer the overall research question, *How do theories explain learning behaviour in school contexts?* and, as was explained earlier, it was necessary first to deconstruct the broad concept of 'learning behaviour'. This was achieved through an analysis of QTS standards documents, which led to a series of classroom behaviours being identified and included as review-specific keywords. Having 'unpacked' learning behaviour, it was also important to reveal the team's assumptions underlying the research question and conceptual framework. Firstly, it was assumed that there would be a body of research evidence that sought to explain aspects of learning behaviour and to do so by testing theories or by relating the findings to theories. Secondly, the conceptual framework was rooted in the belief that pupils' behaviour is shaped by contextual factors. The review question frames the context within school environments, and is based on Bronfenbrenner's Ecological Systems Theory (1989). The school context is viewed as a 'microsystem' which 'is a pattern of activities, social roles and interpersonal relations experienced by the developing person in a given face-to-face setting with particular physical, social and symbolic features that invite, permit, or inhibit engagement in sustained, progressively more complex interaction with, and activity in, the immediate environment' (Bronfenbrenner and Morris, 1998, p 1013). As a result of the explicit importance of interaction within this bio-ecological model, 'relationships' was also included as a review-specific data-extraction category. Theories were also grouped into six broad categories (as detailed earlier in this chapter).

In order to structure the synthesis of evidence¹⁰, subsidiary research questions were devised. These arose from the assumptions underlying the overall research question, and were as follows:

- To what extent has research into theoretical explanations of learning behaviour been focused towards ITE?
- How have theories been used to explain learning behaviours in schools contexts?
- What kinds of theories have been used to explain learning behaviour in school contexts?
- What learning behaviours (in school contexts) have been explained by theories?
- In what educational settings have theories been use to explain learning behaviours?
- To what extent are learning behaviours linked to curricular areas in school contexts?

¹⁰ Results of the synthesis of evidence in relation to the overall research question and the six subsidiary questions are discussed in Chapters 3 and 4.

2.3.5 In-depth review: quality assurance process

The selected studies were re-read by all core members of the review team and data were then extracted from each study by team members. The team's EPPI contact also extracted data from two studies. After the data were extracted, reviewers met (or spoke on the telephone) to discuss their answers to the series of questions and to resolve any discrepancies. For the most part, differences existed only in relation to whether reviewers had ticked 'explicit', 'implicit' or 'not stated/unclear', but additional details provided were usually similar, regardless of which box had been ticked. Consequently, differences arose from the ways in which EPPI questions had been interpreted, rather than the way in which the studies had been interpreted. Judgements for weight of evidence were carried out using the same procedures, in consultation with the team's EPPI contact.

3. IDENTIFYING AND DESCRIBING STUDIES: RESULTS

The first section of this chapter (section 3.1) details the results of the step-by-step process of:

- (a) Searching for potentially relevant studies
- (b) Screening studies for specific relevance to the review question
- (c) Revising the search strategy
- (d) Refining the screening process
- (e) Moving on from screening to keywording

The process is explained diagrammatically in Figure 3.1.

The second section of the chapter (section 3.2) reveals the characteristics of the studies that, through searches and screening, were judged to be most relevant to the review and provided evidence to answer the review questions. The keywording process enabled the production of frequency counts and cross-tabulation of the studies' characteristics, which are presented in table format in this section with accompanying, explanatory text and comment.

The final section of this chapter (section 3.3) describes the results of the quality assurance procedures that were followed throughout the searching, screening, keywording and mapping stages of the review, in conjunction with EPPI-Centre staff.

3.1 Studies included from searching and screening

The searching and screening process went through a series of stages as discussed below.

The first electronic searches were carried out using broad inclusion criteria as search terms (theories, behaviour, relationships, school contexts and teacher education/training – as described in Chapter 2). The pilot electronic searches, using individual search terms, yielded more than 200,000 citations in total.

However, the subsequent 'limited' searches reduced the yield to around 100,000 citations. This yield was still too high and many of the studies were found to be lacking in relevance to the review.

A new search strategy was adopted using (limited) search terms combined in strings (e.g. cognitive theory AND pupil behaviour AND relationships AND schools AND teacher education/training). However, the inclusion of the terms 'teacher education' and 'teacher training' led to a no-yield result. Consequently, these terms were removed from the combined search strategy. The searches were regenerated and resulted in a yield of 793 potentially relevant studies (including handsearches).

Figure 3.1: Studies included from searching and screening

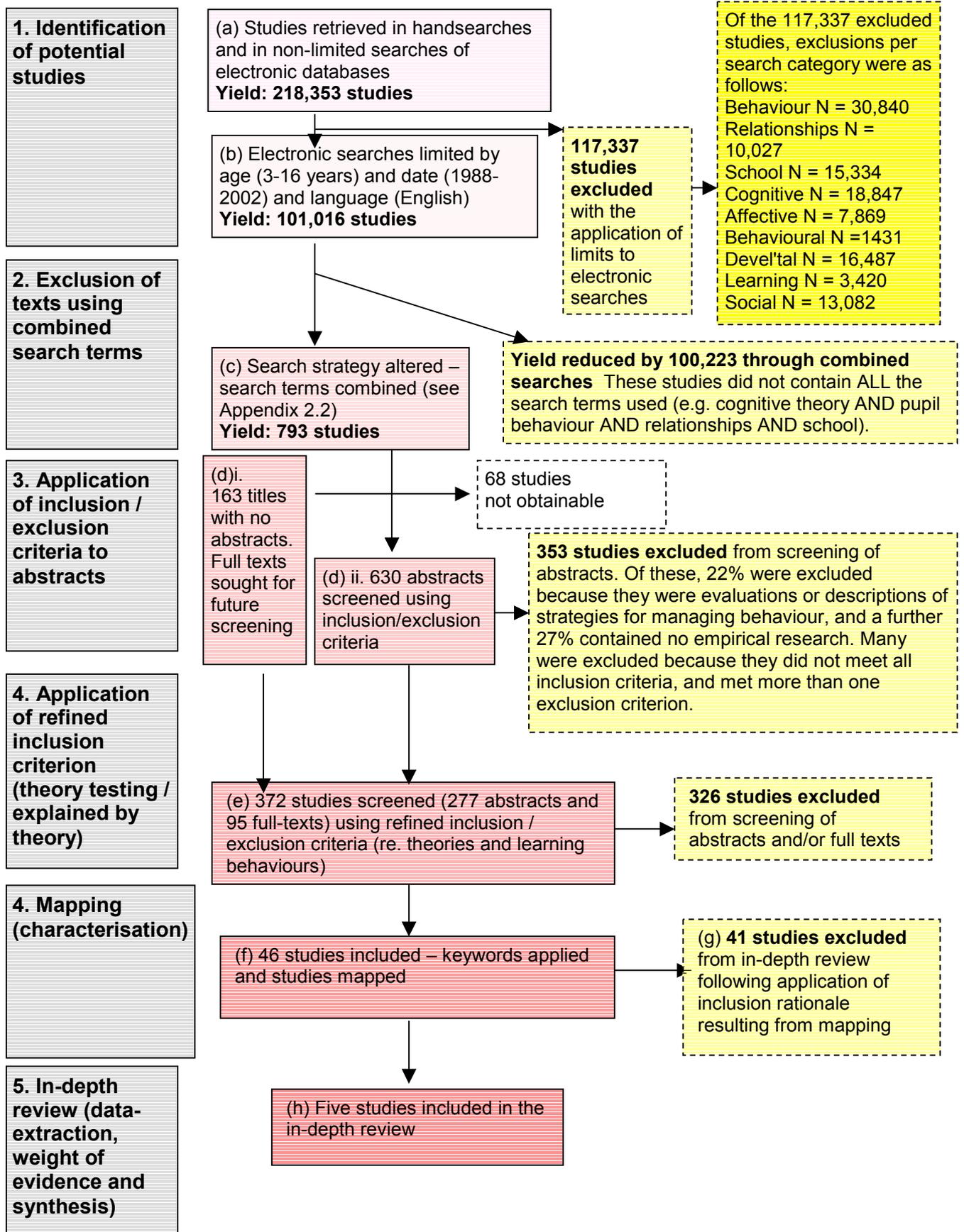


Table 3.1 shows the individual sources of the citations yielded using combined search terms. The figures are not mutually exclusive as some searches yielded duplicate studies.

Table 3.1: Sources of citations yielded in searches

Sources	Number of citations (total = 793)
Handsearches / personal contacts	16
BEI	112
ERIC	478
PsycINFO	38
Zetoc	44
ASSIA	57
Science Direct	4
CERUK	11
Regard	0
BERA	0
AARE (1993 onwards)	7
AERA	0
EERA	0
Special Needs Abstracts	17
DfES/DfEE	4
British Education Line	4
SCRE	1
NREL	0

Inclusion and exclusion criteria were applied to abstracts (or full texts where available) at this stage, resulting in the exclusion of 353 reports. Of these, 22% were excluded because they were evaluations or descriptions of strategies for managing behaviour, and a further 27% contained no empirical research. Many were excluded because they did not meet all the inclusion criteria and met more than one exclusion criterion. A further 68 were excluded because neither the abstracts nor the full texts were obtainable. Table 3.2 shows the inclusions and exclusions per source made during this stage of the screening process.

Table 3.2: Number of studies included and excluded per source

Sources	Citations yielded	Studies excluded ¹¹	Studies included at this stage
BEI	112	64	48
ERIC	478	173	305
PsycINFO	38	12	26
Zetoc	44	21	23

¹¹ Figures include exclusions of duplicates (studies listed in more than one database).

ASSIA	57	52	5
Others	64	31	33
Total	793	353	440¹²

There then remained 372 included studies. Inspection of abstracts, where available, revealed that there were many studies with minimal reference to theory, and others that did not explore learning behaviours. Consequently, the inclusion criteria were refined in relation to 'theories' and 'learning behaviours'. The six categories of theories (cognitive, learning, behavioural, affective, social and developmental) remained, but studies now needed to be overtly driven by or explained by theory if they were to be included. While this decision had initially been made for practical reasons (too many studies), it was also important because the theory element was fundamental to the review question: if evidence was to be found about how theories could explain learning behaviour, then the researchers' use of theories needed to be explicit in their reports. In addition, the term 'learning behaviour' was unpicked and an analysis of QTS standards documentation resulted in more specific inclusion criteria (participation, engagement, motivation, responsiveness, etc.).

The refined inclusion criteria (and original exclusion criteria) were then reapplied to the 372 studies and this process resulted in the exclusion of 326 studies whose focus was not sufficiently relevant to the review.

The entire searching and screening process finally resulted in the inclusion of 46 studies, which were taken forward to the keywording and mapping stage. The characteristics of the systematic map of these 46 studies are described later in this chapter. The map provided a framework from which a rationale was developed, on the basis of which a sample of studies was selected for in-depth review.

3.2 Characteristics of the included studies

Data-extractions from the keywording of all 46 included studies were entered into Excel spreadsheets and, later, was also uploaded into the EPPI-Reviewer® database, in which it was possible to run a series of basic analyses. The results of these analyses are presented here in table format. (Keywording of a sample of studies can be found in Appendix 3.1.)

The EPPI-Reviewer® tool provided the facility for running frequency counts, cross-tabulations and full-text reports of data entered under the various keywording categories. The first group of tables that follows here provides details of frequency counts for EPPI generic education research keywords and review-specific keywording categories, with a brief commentary beneath each table. In many cases, the figures in second column are not mutually exclusive because studies often reported research that involved keywords from more than one sub-category (e.g. primary and secondary schools; several learning behaviours).

¹² Of which 68 were unobtainable in full-text version and so had to be excluded from the review.

Table 3.3: Frequency report - age of learners (years) (N = 46)

Attribute	Number of studies (not mutually exclusive)
0-4	8
5-10	24
11-16	29
17-20	5
21 and over	1

The exclusion criteria for this review were such that the age of learners was restricted to 3 to 16 years of age but some studies, while focusing on this age group, also reported findings that related to younger or older children. One study (Saracho, 1989) was a review of cognitive styles and included references to adult learners – hence a score of one in the '21 and over' category. As Table 3.3 shows, the majority of studies focused on learners between 5 and 16 years of age. Although this may be partly due to the search strategy in which electronic searches were limited by age or educational setting, it appears that studies focusing on the 3-5 age group (relevant to the review question and inclusion criteria) are generally fewer than those focusing on children of compulsory school age.

Table 3.4: Frequency report: What is/are the educational setting(s) of the study? (N = 46)

Attribute	Number of studies (not mutually exclusive)
Higher education institution	1
Independent school	1
Nursery school	8
Primary school	17
Secondary school	17
Other educational setting	9

The review's inclusion criteria demanded that the research reported in the 46 studies should focus on one or more school contexts. The above table shows that the majority of studies reported research that had been conducted in schools at primary or secondary level. In the case of non-English studies, elementary or high schools were classified as primary or secondary, but additional notes were added during keywording to show the school classification in the country of origin. Table 3.5 shows the country of origin of the 46 included studies.

Table 3.5: Frequency report: In which country/countries was the study carried out? (N = 46)

Attribute	Number of studies (mutually exclusive)
Australia	2
Canada	5
England	12
Finland	1
Germany	1

Attribute	Number of studies (mutually exclusive)
Greece	1
Holland	1
Israel	1
Korea	1
New Zealand	1
Poland	1
St. Vincent, West Indies	1
USA	18

The main focus of all 46 studies was learners (see Table 3.6), but 11 studies also reflected on teaching staff as a subsidiary focus. Interactions or relationships between learners and teachers (and learners and parents reported by Ashley, 2001) constituted a significant element of the conceptual framework for this review. Table 3.7 shows the frequency count for the different categories of relationships and is linked to the fact that 12 studies focused on both learners and teaching staff or learners and parents, as shown in Table 3.6. Table 3.7 shows a figure higher than 11 for pupil-teacher relationships (28 studies) and pupil-parent relationships (three studies) because some studies revealed aspects of these types of relationships even though their focus was only on learners.

Table 3.6: Frequency report: What is/are the population focus/foci of the study? (N = 46)

Attribute	Number of studies (not mutually exclusive)
Learners	46
Teaching staff	11
Parents	1

Table 3.7: Frequency report – relationships (N = 46)

Attribute	Number of studies (not mutually exclusive)
Peer	26
Pupil-teacher	29
Pupil-parent	4
Pupil-school	11
Pupil-other (curriculum)	12
Pupil-other (self)	1

Table 3.7 also shows that more than half the studies (26) made reference to peer relationships. Eleven studies reported issues relating to pupils' relationship with the school environment (excluding teacher and peers); of the 12 studies in the 'pupil-other' relationship category, 11 reported aspects of pupils' relationships with the curriculum, and one explored the links between pupils' self image (pupil-self relationship) and their learning behaviour.

Table 3.8: Frequency report – curriculum (N = 46)

Attribute	Number of studies (not mutually exclusive)
The material does not focus on curriculum issues	16
Cross-curricular/general	18
Science	6
Maths	6
Literacy – first language	4
Literacy – further languages	1
Geography	2
Physical education	2
Design and technology	2

Although the appearance of Table 3.8 suggests that a total of 23 studies focused on a particular curriculum area, these categories were not mutually exclusive. In fact, there were only 13 such studies of which four covered between two and five curriculum areas. The remaining 33 studies were classified either as cross-curricular/general, or as not having any particular focus on curriculum issues. The 13 subject-specific studies are listed in Table 3.9. Reviewers' comments are also included where they were entered into EPPI-Reviewer® database during the keywording process.

Table 3.9: Studies with a focus on particular curriculum areas or issues (N = 13)

Studies	Curriculum areas
Bliss <i>et al.</i> (1996)	Design and technology; maths; science
Cadieux A (1996)	Literacy – first language; maths; physical education
Jarvela <i>et al.</i> (2000)	Design and technology; general <i>Although the experiments use design and tech situations, the study is intended to be useful to all areas of the curriculum.</i>
Kaplan <i>et al.</i> (2002)	Maths
Meeks (1999)	Literacy – first language
Norwich, B. (1994)	Maths
Norwich and Duncan (1990)	Science
Norwich and Rovoli (1993)	Literacy – first language English; maths
Oettingen <i>et al.</i> (2000)	Literacy – further languages: German students learning English as a foreign language
Oshima <i>et al.</i> (1996)	Science
Saracho (1995)	Geography; literacy – first language; maths; physical education; science Other curriculum: <i>Author states that the pre-school children engaged in physical,</i>

Studies	Curriculum areas
	<i>manipulative and dramatic play, which she says can be matched to elementary or secondary subjects... 'health and physical education and recreation... geography, science and mathematics;... reading, science and mathematics;... and social studies'</i> (Saracho, 1995, p 30).
Spector and Gibson (1991)	Science
Tao and Gunstone (1999)	Science

As Tables 3.8 and 3.9 both show, of all the curriculum areas, science and maths received the greatest attention (six studies in each case). Kaplan *et al.* (2002) explained that their study focused on maths because 'maths is deemed an important domain... and... more so than other subjects has been characterised more clearly as performance goals oriented' (op. cit., p196). Bliss *et al.* (1996) explained that their study had focused on design and technology, maths and science because of their aim to explore the difficulties experienced by teachers and pupils in scaffolding specialised school knowledge. Tao and Gunstone (1999) asserted that, although their study using computer-supported collaborative learning (CSCL) explored conceptual change in science, the method (CSCL) could be adapted to other contexts and domains.

Sixteen of the studies did not focus on any particular curriculum issue and the focus of 18 studies was largely general or cross-curricular; in some cases, research had been conducted during a particular subject lesson (such as Design and Technology) but the researchers were not intent upon a curriculum focus and did not frame their findings or conclusions with reference to particular subject areas. Art, Business Studies, Citizenship, Environment, History, Literature, Music, PSE, Religious Education and Vocational Studies were EPPI keywording categories for the curriculum that were not covered by the research in any of the 46 included studies.

Table 3.10: Frequency report: Which type(s) of study does this report describe? (N = 46)

Attribute	Number of studies
Description	1
Exploration of relationships	23
Evaluation: naturally-occurring	9
Evaluation: researcher-manipulated	11
Review	2

Table 3.10 presents a frequency count for the range of study types categorised in accordance with the EPPI-Centre core keywording strategy. The analyses revealed that the most common study type was 'exploration of relationships' (23 incidences); studies falling into this category examined links between variables, mainly using statistical data analysis, in order to test theories or generate correlations that were then discussed in relation to theories. This classification was found in studies

across the whole age range covered by the review – those located in pre-schools, primary/elementary schools, middle schools, and secondary/high schools. They also covered the whole range of theories and learning behaviours. Likewise, studies falling into the evaluation categories (20 in total) collectively covered a broad range of educational contexts, theories and learning behaviours. The three remaining studies were classified as study types: description (one study), and review (two studies). Descriptive and evaluation studies relating to *strategies* for managing disruptive behaviour had previously been excluded (see methodology section 2.2.1).

Analysis of learning behaviours reveals that 'engagement' was the most frequently covered and was mentioned in 20 of the studies. Table 3.11 shows that, when the learning behaviours are grouped into those that promote or hinder learning, there are many more of the positive types. This suggests that researchers have a tendency to focus on the more positive learning behaviours in relation to theories.

Table 3.11: Frequency report – learning behaviours

Attribute (learning behaviours)	Number of studies (not mutually exclusive)
Engagement	20
Collaboration	16
Participation	15
Communication	12
Motivation	12
Independent activity	11
Responsiveness	9
Self-regard	7
Self-esteem	4
Responsibility	4
Total (positive)	110
Disaffection	4
Disruptiveness	7
Problems	9
Total (negative)	20

Of the 46 studies, 39 reported research that had been conducted with participants of both sexes. Only one study focused specifically on girls' learning behaviour in maths in a single sex school. Six studies included only male pupils and, of these six, four (Agran *et al.*, 2001; Ashley, 2001, 2002; Nelson, 1992) focused on boys with learning, emotional and behavioural difficulties in school, although two of these studies reported different aspects of one piece of research.

Table 3.12: Frequency report – sex of learners (N = 46)

Attribute	Number of studies (mutually exclusive)
Female only	1

Attribute	Number of studies (mutually exclusive)
Male only	6
Mixed sex	39

The review's search strategy and subsequently the review-specific keywords included six broad categories of theories; all 46 studies included theories that came under one or more of these categories. The frequency counts for these theories are shown in Table 3.13.

Table 3.13: Frequency report – theories (N = 46)

Attribute	Number of studies (not mutually exclusive)
Social	21
Cognitive	18
Affective	17
Learning	14
Behavioural	10
Developmental	7

Table 3.13 shows that the most frequently found theories were those classified as social or cognitive. Eleven of these studies made direct reference to the work of Piaget and Vygotsky (e.g. internalisation, construction of shared meaning, Zone of Proximal Development). Learning theories focused largely upon motivation and attitudes towards learning, and behavioural theories referred to the work of Bruner (1965), for example, and behaviour regulation. Affective theories were related to reasoned action, Maslow's theory (and school attachment) and Bowlby's attachment theory. When theories were mapped in relation to the different age groups (see Table 3.14), it was found that social theories were the most common in the 0-4 years group; and cognitive theories in the 5-10 years group, closely followed by social theories. In the 11-16 years group, however, there was an even spread of cognitive, social, affective and learning theories, but very few studies addressing behavioural and developmental theories in relation to this age group.

Table 3.14: Cross-tabs report - frequency of theories by learner age group (N = 46)

	Ages of learners (not mutually exclusive)		
	0 to 4	5 to 10	11 to 16
Number of studies with cognitive theories	4	10	12
Number of studies with social theories	5	9	12
Number of studies with behavioural theories	3	4	3
Number of studies with affective theories	2	7	12
Number of studies with developmental theories	4	3	2
Number of studies with learning theories	2	6	12

Some studies included more than one type of theory, which is why the figures in Table 3.13 are not mutually exclusive. Figure 3.2 shows how many studies included one, two, three, four or six theories. The largest proportion of studies (n=20) included just one theory and the most frequent single type of theory was

affective (six studies). Eighteen studies included two theories, with the most common combination being cognitive and social, as shown in Figure 3.3 below; other combinations were far less frequently found. Four studies included four theory types (Cooper and McIntyre, 1995; Jarvela *et al.*, 2000; Kienig, 1998; Spector and Gibson, 1991). One study (Flynn, 1991) included all six theory types.

Figure 3.2: Numbers of studies with 1, 2, 3, 4 or 6 theories (N = 46) (mutually exclusive)

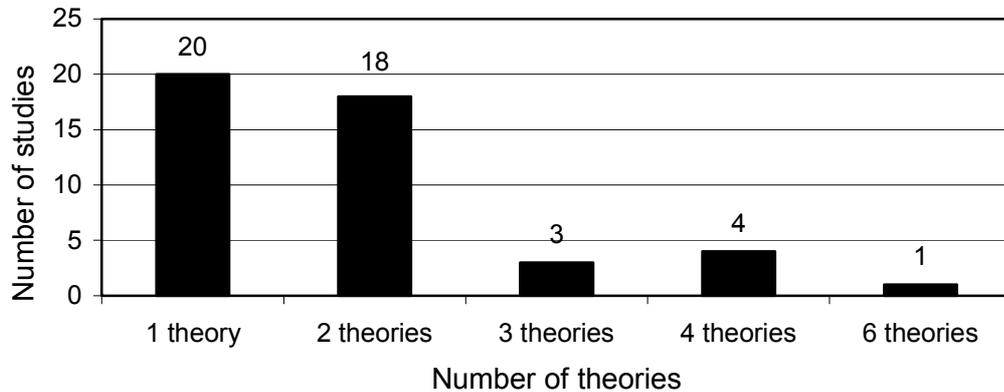
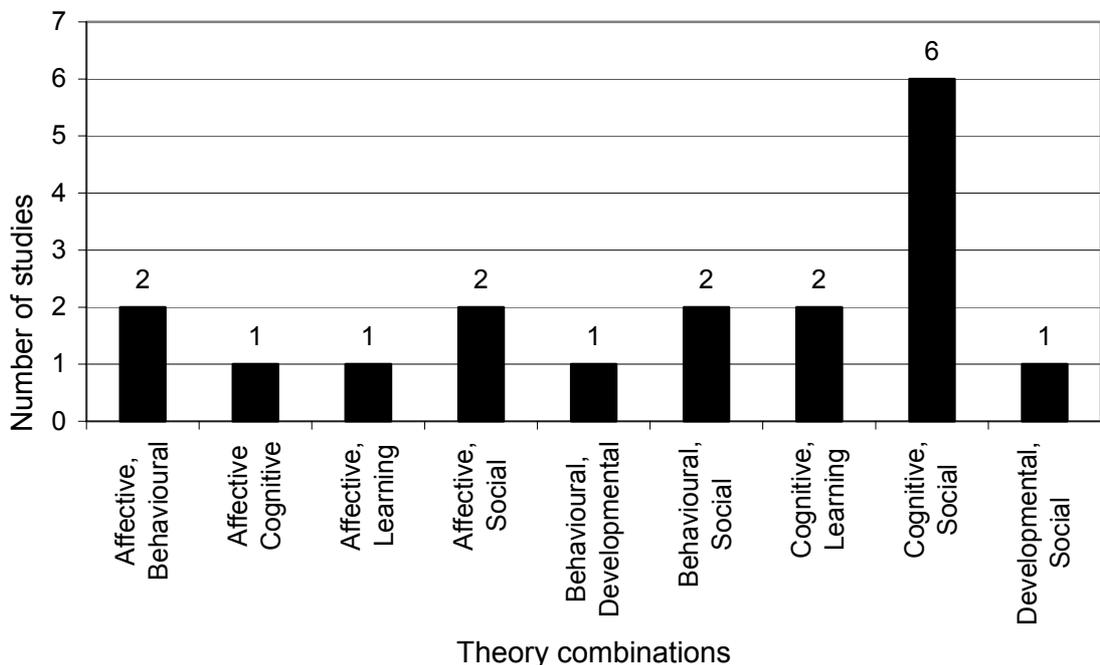


Figure 3.3: Frequency of particular combinations of two theories (N = 18) (mutually exclusive)



Studies in which two or more theories were included were classified as the following study types:

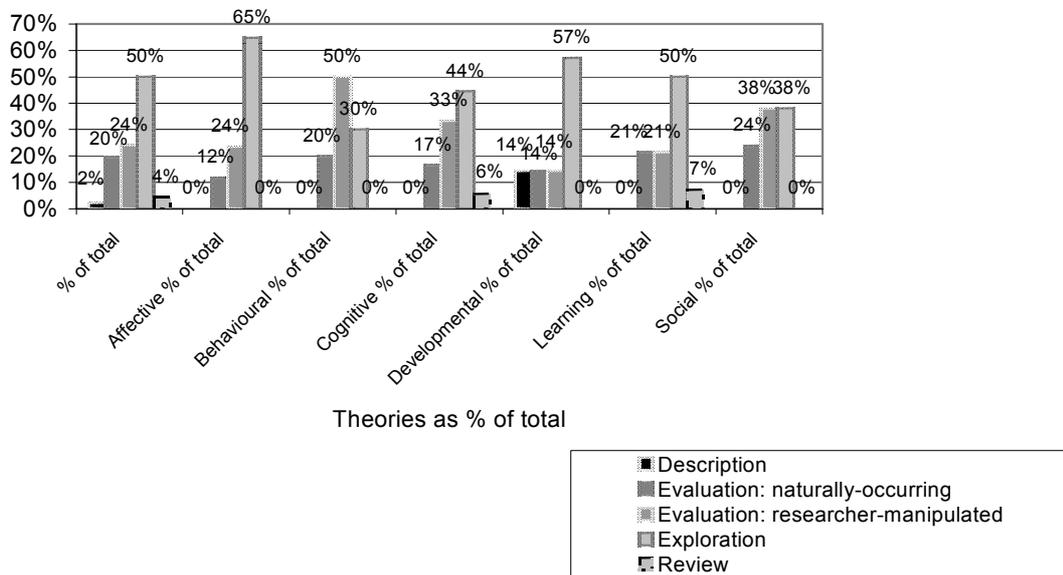
- Exploration of relationships (13 out of a total 23 studies of this study type)
- Evaluation – researcher-manipulated (nine out of a total 11 studies of this study type)
- Evaluation – naturally-occurring (four out of a total nine studies of this study type)

The three studies classified as 'reviews' and 'description' included just one theory in each case.

It appears, therefore, that the evaluation study types in this review tended to include two or more theories more frequently than other categories of study type.

The frequency of study types was previously shown in Table 3.10 and can be seen in the first block of Figure 3.4 below. This figure also shows the frequency of each study type when separated out into categories of theories. So, for example, Figure 3.4 reveals that 65% of the studies that included affective theories were of the 'exploration of relationships' study type, and 50% of the studies that included behavioural theories were researcher-manipulated evaluations.

Figure 3.4: Cross-tabs chart for theories and study types (N = 46) (not mutually exclusive)



Social theories were most commonly found in 'researcher-manipulated evaluations' and 'explorations of relationships' (38% each); cognitive theories were more common in 'explorations of relationships' (44%), as were developmental (57%) and learning (50%) theories. None of the theories was found to be present in all five study types, but cognitive, developmental and learning theories were found in four out of the five types, and affective, behavioural and social theories were present in three out of five study types.

Table 3.15 shows the total number of studies per theory (final column) compared with the number of studies of each study type per theory.

Table 3.15: Cross-tabs – number of studies of a particular study type per theory (N = 46) (not mutually exclusive)

	Description	Evaluation: naturally-occurring	Evaluation: researcher-manipulated	Exploration of relationships	Review	Total number of studies per theory
Affective	0	2	4	11	0	17
Behavioural	0	2	5	3	0	10
Cognitive	0	3	6	8	1	18
Developmental	1	1	1	4	0	7
Learning	0	3	3	7	1	14
Social	0	5	8	8	0	21

In some cases, the numbers of study types per theory seems high – for example, the 11 'exploration of relationships' studies out of a total of 17 that include affective theories. This could be taken as an indication of particular study types being favoured by researchers testing or using specific theories. However, the sample size is small (46 studies in total in this review), and further research would be required to reveal whether a pattern exists more widely.

It was shown earlier, in Table 3.4, that the 46 included studies covered a range of ages of learners in different school contexts – pre-school settings, primary schools, middle schools, secondary schools, or combinations of these. When the studies were categorised using EPPI generic keywords, these studies were grouped according to the ages of the learners (0 to 4, 5 to 10 and 11 to 16). Table 3.16 sets out these age groups and shows the frequencies of particular learning behaviours for each group. In the 0 to 4 years age group, the frequencies of learning behaviours that were recorded are fairly evenly spread. However, there were no studies that included self-regard, self-esteem, disaffection or disruptiveness among learners in this age group. In the 5 to 10 years age group, collaboration, engagement and participation are the most common learning behaviours recorded, and this is also true for the 11 to 16 year-olds.

Table 3.16 also reveals that there were a total of 19 separate, keyworded learning behaviours in the studies that dealt with the 0 to 4 years age group. This was considerably lower than the other two age groups, even taking into consideration the fact that there were just over twice as many studies for each of the two older groups. This is an interesting finding, suggesting that studies of younger children included in the review tended to focus on a narrower range of behaviours than the studies of older children.

Table 3.16: Cross-tabs – frequencies of learning behaviours per age group (N = 46) (not mutually exclusive)

Learning behaviour (LB)	Collaboration	Communication	Disaffection	Disruptiveness	Engagement	Independent activity	Motivation	Participation	Problems	Responsibility	Responsiveness	Self-esteem	Self-regard	Total (LBs per age group)
0 to 4	3	2	0	0	4	2	1	2	3	1	1	0	0	19

5 to 10	7	5	1	3	7	5	5	6	3	2	3	3	2	52
11 to 16	6	5	3	4	9	4	6	7	3	1	5	1	5	59
Total (occurrences of this LB)	16	12	4	7	20	11	12	15	9	4	9	4	7	130

The ages of learners also seems to influence the nature of the relationships that were uncovered in the studies during the keywording process. Relationships with peers were more common in studies of 0 to 4 and 5 to 10 age groups than in the 11 to 16 age group. In the latter, relationships between pupil and teacher, and pupil and the curriculum were the most common. Interestingly, the only age group in which no pupil-parent relationships were recorded was in the 0 to 4 year age group, but this may have be due to the small number of studies.

Table 3.17: Cross-tabs – ages of learners and frequencies of various relationships (N = 46) (not mutually exclusive)

	Relationships				
	Peers	Pupil- teacher	Pupil- school/ curriculum	Pupil-self	Pupil-parent
0 to 4	4	3	2	0	0
5 to 10	15	14	9	1	2
11 to 16	7	12	12	0	2
Totals	26	29	23	1	4

The frequency counts and cross-tabs helped to gain a perspective on the overall characteristics of the 46 included studies and to begin to see how the characteristics of the map might start to answer the review question and the sub-questions that the team had developed. The next section begins to relate the characteristics of the mapping of studies to the review's questions.

(a) How have theories been used to explain learning behaviours in school contexts?

Firstly, the mapping suggests that theory is rarely used to drive experimental studies that seek to establish the role of theory in manipulating, predicting, or influencing the development of learning behaviours. In the research studies reviewed, theory is more frequently 'associated' with learning behaviours in a range of ways: for example, providing background literature or possible theoretical links and explanations for the study outcomes. It needs to be noted here that theoretical 'explanations' of learning behaviour may be more prevalent in non-empirical studies or literature reviews that were excluded by this review. Additionally, this review excluded empirical studies that did not have a focus on theories and were evaluations or descriptions of *strategies* for dealing with behaviour problems because another review team was covering this area of research. Nonetheless, the scarcity of studies that seek to provide an evidence base for theoretical explanations of such an important area for education as 'learning behaviours' suggests crucial gaps in this area of research. Clearly the methodological difficulties, costs involved (particularly if longitudinal studies are required) and time pressures for research outputs are likely to be factors that are influential in

restricting this type of research endeavour. It could also be that the trend over time for teacher training to move from a developmental focus towards a subject-based emphasis has influenced research outputs to those that link theoretical underpinnings to specific subject areas and attainment, for example, literacy and numeracy.

(b) What kinds of theories have been used to explain learning behaviour in school contexts?

Evidence from mapping suggests that a range of theories is associated with learning behaviours. This was identified during the original searching of studies (see Figure 3.1) and remained a feature of identified studies throughout the systematic review process. Some studies used more than one theoretical approach, as reflected by the 87 theory types identified during data-extraction of the 46 studies included in the systematic map. The most frequently found theories in the 46 included studies were classified as social (21 references), cognitive (18 references) and affective (17 references), supporting a view that research into learning behaviours in the classroom reflects the interplay of feeling, thinking and doing/interacting. Theories mapped in relation to age revealed that cognitive theories were most common in the 5 to 10 year age group closely followed by social theories. In the 11 to 16 age group, there was an even spread of cognitive, social, affective and learning theories. Developmental and behavioural theories were least common in both groups. This finding is of interest, given that strategies for behaviour management in schools tend to be underpinned by approaches based on behavioural theories. However, contemporary approaches to developments in pedagogy for diversity and inclusion have included cognitive (for example, multiple intelligences (Gardner, 1993)), thinking skills and learning styles, affective (e.g. emotional intelligence) and social (social skills training, Walker *et al.* (1995)), including group work, collaboration, problem-solving and negotiation underpinnings.

Evidence from the mapping consistently suggests that authors' use of theory to explain 'learning behaviour' in school contexts has often been carried out with a combination of two or more theories, thereby addressing the inter-relationships between social, cognitive and affective dimensions. This finding has implications for those involved in teacher training in terms of the knowledge and understanding that may be required in relation to the promotion of effective learning behaviour in school contexts.

(c) What learning behaviours have been explained by theories in school contexts?

There is consistent evidence from the mapping to show that a range of descriptors are used to reflect that learning behaviour develops from an interaction of individual, contextual and social factors. Analysis and synthesis of review-specific keywords from the 46 included studies reveal that the terms 'engagement', 'collaboration' and 'participation' are the most frequently cited followed by 'communication' and 'motivation' (as shown in Table 3.16). This is an interesting finding and supports the position taken by the two authors of this review (outlined in Chapter 1) that learning behaviour in schools contexts could be conceptualised by reference to three essential components:

1. *Relationship with task or curriculum* – covered by terms such as 'engagement' and 'motivation'
2. *Relationship with others* – (i.e. peers, teachers) covered by term such as 'collaboration', 'participation', 'communication' and 'responsiveness'
3. *Relationship with self* – covered by terms such as 'responsibility', 'self-esteem', 'self-regard/efficacy' and 'independent activity'

Teaching and learning in schools is distinctive in that it is traditionally carried out in group settings. This is reflected by the characteristics of the map, which shows that that 'relationships with others' (covered by terms such as collaboration, participation, communication and responsiveness) is the most frequently mentioned category, making up roughly half of all learning behaviours covered by the 46 included studies. Predictably, 'relationships with peers' (26 occurrences) and 'relationships with teachers' (29 occurrences) were the most commonly recorded categories for relationships.

(d) To what extent are learning behaviours linked to curricular areas in school contexts?

Findings from the 46 studies selected for inclusion reflect that the majority (72%) did not have a particular curriculum focus (see Tables 3.8 and 3.9). The remaining studies either had between two and five curriculum areas mentioned (four studies), particularly literacy, or a specific area, i.e. maths (two studies), science (four studies), literacy/language (two studies), design and technology (one study). It appears that there was a general tendency for studies to be non-subject-specific when considering theories in relation to learning behaviours. Even studies that were located within specific lessons did not necessarily intend to carry out subject-specific research, as previously described (see Table 3.9 and accompanying text).

(e) To what extent has research into theoretical explanations of learning behaviour been focused towards ITE?

Only one of the 46 studies selected for mapping (Bondy and McKenzie, 1999) focused on mentor guidance of a newly qualified teacher's attempt to re-construct the curriculum, such that academic and social elements were integrated and learning consequently enhanced. This study was not specifically about theoretical explanations of learning behaviour and was consequently not included in the studies selected for in-depth review. The results of the searching and screening process revealed that there was no empirical evidence linking theories and learning behaviours that was designed specifically to inform ITE.

3.3 Identifying and describing studies: quality assurance results

The quality assurance process described in section 2.2.6 helped to ensure consistency in the interpretation of texts and completion of keywording, and to provide a solid foundation upon which individual review team members were able to continue keywording independently of each other. There were few discrepancies between codings by the review team and the EPPI-centre staff member. Those that did arise tended to fall into two categories:

1. *EPPI-Centre core keywording categories – study type*

There were occasions where the review team had incorrectly categorised the study type as an 'evaluation' rather than an 'exploration of relationships'. The EPPI link member of staff provided clarification through the EPPI guidelines that define each study type and the review team corrected errors accordingly.

2. *Review-specific keywording categories – theories*

There were some discrepancies between the review team's and EPPI staff member's keywording of the different types of theories (into the six categories). The review team provided more detailed descriptions of the different categories of theories and agreement was subsequently reached about keywording of theories.

4. IN-DEPTH REVIEW: RESULTS

The systematic map provided a basic description of the research field but did not involve a detailed examination of individual studies or an assessment of their findings. This chapter reports on the in-depth review of a sub-set of five studies that met a narrower set of inclusion criteria related to the review question. The characteristics of these studies are shown in comparison with the other 41 studies included in the review as a whole. Subsequently, findings from the five studies are presented under headings that represent review-specific categories or themes. The chapter concludes with a brief summary of the results of the quality assurance process that was applied during the in-depth review and discusses user involvement.

4.1 Selecting studies for the in-depth review

Studies included in the in-depth review

1. Ben-Ari and Kedem-Friedrich (2000): Restructuring heterogeneous classes for cognitive development: social interactive perspective.
2. Kaplan *et al.* (2002): Classroom goal structure and student disruptive behaviour
3. McDermott *et al.* (2001): The organisation of student performance in American schools: discipline, motivation, verbal learning and nonverbal learning
4. Norwich and Rovoli (1993): Affective factors and learning behaviour in secondary school mathematics and English lessons for average and low attainers'
5. Oettingen *et al.* (2000): Effective self-regulation of goal attainment

The methods used to select the studies for in-depth review were described earlier (section 2.3.1). Briefly, this involved a process of moving on from broad characterisation on the basis of a criterion that studies included in the in-depth review should, jointly, reflect a wide range and combination of the characteristics of the systematic map.

The keywording process did not include judgements about the studies' findings and the weight of evidence in answering the review question (based on their relevance to the review question, and the strength of research methods and reporting). However, the team's research experience was such that judging the relevance of studies, and the quality of their methods and findings, was an inherent part of the review process prior to in-depth review. Later, the data-extraction process included detailed coding of all five studies, including weight of evidence judgements with studies judged (section 2.3.3) to be of high, medium or low trustworthiness and relevance. The results are shown later (Table 4.3).

4.2 Comparing the studies selected for the in-depth review with the total studies in the systematic map

The results of the mapping process are shown in basic frequency count format in Table 4.1. The characteristics of the studies are separated into two columns to show how the five studies selected for in-depth review compared with the overall mapping of the 46 studies in the review.

In selecting studies for the in-depth review, the team aimed to represent as broad a range as possible of the characteristics of the overall map. Given the time limitations and, therefore, the restriction of the in-depth review to only five studies, it was only possible to cover most (but not all) of the characteristics, and so the team tried to include those most frequently found, while also selecting studies that were methodologically strong.

Had more time been available, additional studies could have been included in the in-depth review in order that all the theories, learning behaviours, educational settings and ages/sexes of participants could have been represented.

The overall map included the entire range of theory categories, but the studies selected for in-depth review did not include developmental theory. This was mainly because the studies that related to developmental theories were about learners in pre-school settings.

The 46 studies also included a wide range of learning behaviours. The five studies selected for in-depth review also covered most, but not all, these learning behaviours. Those not included were 'problems' and 'disaffection'. This reflected the results of the mapping process, which showed that the 'negative' learning behaviours were far less frequently studied (in relation to theories) than were the 'positive' learning behaviours.

The mapping also highlighted differences when learning behaviours were grouped in accordance with the review's conceptual framework. The learning behaviours that referred to the self (self-esteem, self-regard, independent activity and responsibility) were less common than those that suggested interaction with others (for example, collaboration and communication). The 'self' behaviours totalled just 26, compared with a total of 52 occurrences for participation, collaboration, communication and responsiveness. This finding was reflected in the selection of studies for the in-depth review, which included more references to 'social interaction'-type learning behaviours and to 'on-task'-type behaviours (e.g. motivation, engagement), which were the most common of all the learning behaviours.

The five studies covered all the categories of relationships reflected in the 46 studies.

The five studies covered the major age range (5 to 16 years), which included primary and secondary mixed-sex school settings.

The most common types of studies among the 46 included in the review were evaluations (both naturally-occurring interventions and researcher-manipulated interventions) and explorations of relationships; consequently, the five studies included in the in-depth review covered both these study types. Although 'review' study types had been included up to the mapping stage, these were not a common

study type (two in total). Furthermore, the EPPI-Centre procedures for data-extraction are based on primary studies, so reviews of research were not included beyond the mapping stage of the review process.

Table 4.1: Frequency report comparing 46 mapped studies with five in-depth review studies

Categories	Attribute	46 studies	5 studies
Theories (not mutually exclusive)	Cognitive	18	3
	Social	21	1
	Behavioural	10	2
	Affective	17	2
	Developmental	7	
	Learning	14	3
Behaviour (not mutually exclusive)	Engagement	20	3
	Collaboration	16	1
	Participation	15	2
	Communication	12	2
	Independent activity	11	1
	Problems	9	
	Motivation	12	4
	Responsiveness	9	1
	Self-regard	7	2
	Responsibility	4	
	Self-esteem	4	1
	Disruptiveness	7	2
	Disaffection	4	
Relationships (not mutually exclusive)	Peer	26	2
	Pupil-teacher	29	4
	Pupil-parent	4	1
	Pupil-school	13	2
	Pupil-other	12	2
Educational setting	Higher education institution	1	
	Independent school	1	
	Nursery school	8	
	Primary school	17	1
	Secondary school	17	2
	Other educational setting	9	2
Age range	0 to 4	8	
	5 to 10	24	3
	11 to 16	29	6
	17 to 20	5	
	21 and over	1	
Sex	Female only	1	
	Male only	6	
	Mixed sex	39	5
Curriculum area (not mutually exclusive)	Material does not focus on curriculum issues	16	2
	Cross-curricular/general	18	
	Science	6	

Categories	Attribute	46 studies	5 studies
	Maths	6	2
	Literacy – first language	4	1
	Literacy – further languages	1	1
	Design and technology	2	
	Geography	2	
	Physical education	2	
Study type	Description	1	
	Exploration of relationships	23	2
	Evaluations	20	3
	Review	2	

4.3 Further details of studies included in the in-depth review

This section provides short narrative summaries of the five studies included in the in-depth review. Additional details of the studies' broad aims, research design, data-collection and analysis, authors' findings and authors' conclusions for each of the five studies in the in-depth review are provided in Appendix 4.1. The information supplied here stems from the data-extraction process that was conducted for the in-depth review.

Ben-Ari and Kedem-Friedrich (2000) explored the relationships between two different teaching styles ('supervisor' and 'developer') and the amount of on-task interactive behaviour among 1,017 elementary school pupils of mixed sex, aged 8 to 11 years. Teachers had previously been trained in 'complex instruction' methods that recommended a 'developer' role in teaching; the authors correctly hypothesised that this type of teaching approach would encourage pupils' on-task verbal interaction and this type of interaction would lead to greater cognitive change among pupils in heterogeneous classrooms than non-verbal interaction (more commonly found resulting from the 'supervisor' teaching role).

Kaplan *et al.* (2002) investigated whether the goal structure in classrooms could be related to incidences of disruptive behaviour. Three hundred and eighty-eight students from 60 maths classes taught by 25 maths teachers were surveyed about their personal achievement goals, their perceptions of (maths) classroom goal structures, and their involvement in disruptive behaviour in maths lessons. The teachers were surveyed about their classroom goal structures (that is, their goal-related approaches to teaching). Data were also collected on ethnicity and maths GPA. Analysis sought whether, over and above personal goal orientations, there were relationships between students' perceptions of classroom goal structures; whether these were similar between classrooms; and, if so, whether they were related to teachers' reports of their goal-related approaches and students' reports of disruptive behaviour and classroom placement, and whether they could be explained by class goal structure. The authors found that classroom goal structure was an important predictor of variance in disruptive behaviour.

McDermott *et al.* (2001) stated that gaining an accurate picture of the organisation of student performance requires that the various domains of student functioning should be considered simultaneously in order to achieve a nationally standardised measure of school social and emotional adjustment, cognitive ability and

classroom learning behaviour. They therefore collected data from a nationally representative sample of students aged 6 to 17 years old. Researcher-administered scales and teacher observation scales were used to measure students' cognitive, affective and behavioural performance factors relating to learning and academic achievement. The authors' findings provide generalisable data about the levels of male and female pupils' motivation and non-verbal learning at different ages and in relation to their ethnic backgrounds.

Norwich and Rovoli (1993) conducted a study of pupils aged 11 to 14 years in one secondary school during their maths and English lessons, exploring the predictive relationship between (i) pupils' attitude and subjective norm, (ii) behaviour intention, perceived preventive factors and self efficacy in specific lessons, and (iii) pupils' learning behaviour during the lessons. Their sample consisted of low and average achievers (identified by teachers) and the authors also studied whether there were differences in these affective factors for the two different groups. Analysis of questionnaires and observations data revealed that past learning behaviour in both subjects and both lessons was the best predictor of start of lesson variables, behaviour intention, preventive factors, and self-efficacy.

Oettingen *et al.* (2000) explored the principles of fantasy realisation theory through an assessment of pupils' goal commitment in foreign language learning. The study also aimed to demonstrate that fantasy realisation theory could be assessed by behavioural indicators as well as cognitive and affective measures. Fifty-five pupils aged 10 to 12 years old were randomly allocated to three groups and each group was assigned a different test relating to language learning. The findings revealed correlations between academic performance, expectations of success and pupils' self-reported efficacy.

Table 4.2 shows the ways in which the theories included in these five studies addressed the research question, 'How do theories explain learning behaviour in school contexts?' Four of the five studies were described as being 'driven by theory' because a particular theory was included in the research design and was explored or tested in the research process. One of the studies was described as 'explained by theory' because the hypothesis and conclusions were supported by references to particular theories.

Table 4.2: Results: mapping of theories from studies in the in-depth review

Authors	Keyword category	Driven by theory	Explained by theory
Ben-Ari and Kedem-Friedrich (2000)	Cognitive, learning, social	Social constructivism of Piaget and Vygotsky	
Kaplan <i>et al.</i> (2002)	Learning	Achievement Goal Theory of Motivation	
McDermott <i>et al.</i> (2001)	Affective		Self-regulation, motivation, social learning, biological (Devel/Cog)
Norwich and Rovoli (1993)	Affective, behavioural, cognitive	Theory of Reasoned Action	
Oettingen <i>et al.</i> (2000)	Cognitive, behavioural, learning	Fantasy Realisation Theory	

4.4 Synthesis of evidence

The following sections present the findings of the five studies included in the in-depth review under review-specific sub-headings. When reading the review team's synthesis of evidence, findings, conclusions and recommendations, the studies' weight of evidence should be borne in mind. Studies with a high weight of evidence in categories B, C, and D are those that have the greatest relevance to this review. However, the findings of the studies are not necessarily transferable to all contexts; only one study (McDermott *et al.*) analysed data from a sample that was representative of the wider population of pupils (in the USA) and suggested that the study's findings could be generalised accordingly.

Table 4.3: Results – weight of evidence

Authors	Question A	Question B	Question C	Question D
Ben-Ari and Kedem-Friedrich (2000)	High	Medium	Medium	Medium
Kaplan <i>et al.</i> (2002)	Medium	High	High	High
McDermott <i>et al.</i> (2001)	Medium	Medium	Medium	Medium
Norwich and Rovoli (1993)	High	High	High	High
Oettingen <i>et al.</i> (2000)	High	High	High	High

In making judgements for category A, studies were awarded a rating of high, medium or low weight of evidence on the basis of a series of preceding questions in the data-extraction process. These questions related to the studies' design, including sampling, data-collection methods and data-analysis, the clarity of reporting and ultimate 'trustworthiness' of the findings. Subsequent weight of evidence questions B and C pertained to the appropriateness of the studies' designs and the relevance to the specific focus of this review. Weight of evidence D represents a summary of weights of evidence A to C.

The following section explains the ways in which the five studies together began to answer some of the review questions.

4.4.1 To what extent has research into theoretical explanations of learning behaviour been focused towards ITE?

The first of the sub-questions, which considered the relationship between the studies reviewed and ITE, was quickly and simply answered: none of the studies was focused towards ITE.

There is no empirical evidence from this review that theoretical underpinnings of learning behaviour have been used to inform or enhance teacher training during the period 1988-2002. Initial test searches in BEI and ERIC using combined search terms – that is, 'theories', and 'behaviour' (including 'learning behaviour'), together with 'teacher education' – yielded no relevant results (see section 2.2.1) This is an important finding, providing justification for the overall aim of the review, which was to inform ITE tutors about the theoretical underpinnings of learning behaviours in school contexts.

The five studies selected for in-depth review provided explanations of learning behaviour from which implications for teacher training have been extrapolated.

4.4.2 How have theories been used to explain learning behaviour in school contexts?

As Table 4.2 has shown, all five studies have explicit associations with theory. The authors vary in the degree to which theory drives their investigations or explains their results. There is also variation in the extent to which the authors relate the theoretical underpinnings of the research questions or hypotheses to both the methods used and the results.

Three studies clearly state the theoretical framework, and link it to the results. The first is Ben-Ari and Kedem-Friedrich's study, which is driven by social constructivism views derived from the theories of Piaget and Vygotsky. Their conceptual framework recognises the 'pivotal contribution of social interaction to cognitive development...and...cognitive development as a process of a continuous interplay between the individual and the environment' (op.cit., p 154). Their methodology, using two rival models, sets out to test these theoretical assumptions by investigating the links between social interactions and cognitive growth, and between individuals and their environment. The first model – the 'developer' role – was based on social constructivist theories which propose that increased social interaction will result in greater cognitive growth, and that the more teachers promote on-task social interaction, the greater their indirect influence will be on cognitive growth. The second model – the 'supervisor' role – supports rival claims that teachers have a direct influence on pupils' cognitive growth that, in the extreme, would mean that 'on-task social interaction of the pupils distracts and hinders cognitive growth' (op. cit., p 156).

The results have already been discussed, but some are mentioned here in relation to theory because the authors do make some attempt explicitly to relate their theoretical aims to their findings. They state that results showing that teachers' indirect influence on students' verbal on-task interaction accord with the theoretical underpinnings of the study. They also state that their findings concur with the important role of dialogue in social constructivist theories because cognitive growth was only measured where *verbal* on-task interaction took place¹³.

Norwich and Rovoli similarly derive their aims and methodology from 'Reasoned Action Theory' (Ajzen and Fishbein, 1980). Firstly, the context was set within maths and English lessons because this theory emphasises specific behaviour in specific contexts. Secondly, their assessments of subjective (prescriptive) norms and (evaluative) attitudes to learning maths and English were based on the principles that, 'According to reasoned action theory, behaviour is determined by prior intention to perform that specific behaviour' (Norwich and Rovoli, 1992, p 309), and prescriptive and evaluative factors are thought to influence an individual's intention.

Having previously conducted research based on reasoned action theory (for example, Norwich and Duncan, 1990), they added to this study an extra dimension based on the extension of reasoned action theory (Ajzen and Madden, 1986) to situations where participants had limited control. The authors state that this addition to reasoned action theory related to work on self-efficacy (derived from cognitive social learning theory, for example, Bandura, 1982), and, accordingly,

¹³ It is important to note, however, that the authors acknowledge that non-verbal interaction may have shown an influence in this study because the instruments used to assess cognitive growth only measured cognitive verbal abilities; they suggest that the use of alternative instruments that measure non-verbal capacities might have produced different results.

they incorporated measures of self-efficacy and perceived preventive factors in their study.

The results are discussed in relation to the theoretical framework of the study; the authors state that two of their findings were consistent with the decision to include a behaviour control variable: self-efficacy was moderately predicted from past learning behaviour in a particular subject, and to present learning behaviour in the same subject. They also conclude that this study and the two previous, linked studies (Norwich and Jaeger, 1989 and Norwich and Duncan, 1990) inform teachers about the processes that may be related to learning behaviours. These include specific learning intentions that are related to past behaviours, and to pupils' perceptions of factors that will prevent them from learning and their perceived ability to engage in learning. In contrast, pupils' intentions to learn were found not to relate to pressure from significant others.

The third study to explicitly describe the theoretical framework and to link it to findings is that of Oettingen *et al.* Their study was underpinned by 'Fantasy Realization Theory' (Oettingen, 1996, 1999), which 'elucidates three routes to goal setting that result from how people elaborate their fantasies about the future. People can mentally contrast their fantasies about a desired future with present reality, or in their mental elaborations focus solely on either the future of the reality. Mental contrasting leads to expectancy-based goal setting, whereas indulging in positive fantasies and dwelling on negative reality leads to expectancy-independent goal setting' (Oettingen *et al.*, 2000, p 708).

From this theoretical framework, the authors explored goal-setting in school contexts, using experimental groups (as previously described) whose prescribed activities were devised on the basis of the three theoretical routes to goal-setting.

The findings supported the theory that mental contrasting led to expectancy-based goal-setting. Pupils from the fantasy-reality contrast group differed in their persistent effort according to their levels of expectation, whereas the expectations of the pupils in the other two groups did not influence the extent of their persistent effort in learning. Consequently, the authors supported their additional claim that fantasy realisation theory differs from other research which demonstrates that thinking about future events can influence expectations and motivation. They show that purely fantasising desired positive outcomes did not lead to increased commitment or motivation to succeed or to be influenced by expectations. Only the group that performed contrasting mental elaborations showed higher or lower levels of commitment and motivation, which were dependent upon initial levels of expectation to succeed. The authors propose that their findings highlight complexities that are not currently included in interventions aimed at increasing motivation by raising expectations. Such interventions will only be successful, they say, if participants are taught how mentally to contrast their desires with impeding reality. The authors state explicitly that mental contrasting can be taught and can be useful in the classroom. However, they also recommend that pupils should be given the opportunity to practise these mental skills in order for them to be effective in promoting motivation, commitment and achievement. Furthermore, teachers need to be aware of circumstances in which mental contrasting is appropriate and for which pupils it is beneficial.

4.4.3 What learning behaviours in school contexts have been explained by theories?

(a) Self-efficacy: behaviours concerned with the individual's perception of him/herself

Of the five studies, three dealt with issues relating to pupils' self-esteem or self-regard in relation to learning and school contexts. Norwich and Rovoli's (1993) study focused on affective factors and pupils' learning behaviours¹⁴ in secondary school maths and English classes (two lessons each per pupil). Data-collection methods involved a combination of pupil self-report questionnaires, teacher evaluations and researcher observations of classroom behaviours of 28 boys and girls aged 11 to 14 years; the authors measured and explored relationships amongst pupils' attitudes towards, and intentions concerning, maths and English learning, their past and current learning behaviours in classes, and their perceptions of preventive factors and influence of significant others on learning. They also set out to uncover whether affective factors influenced learning behaviours of, and differed between, pupils with low and average attainments.

Measures particularly relating to self-esteem and self-regard were pupils' perceived self-efficacy and (pupil-related) preventive factors for learning maths and English. Past learning behaviour provided the strongest predictions of pupil's self-efficacy and preventive factors, and of current learning behaviour. Results of partial correlation analysis, before controlling for other variables, revealed that preventive factors and self-efficacy predicted learning behaviour in three out of four English and maths lessons. The authors suggest that pupils' perceived self-efficacy is a useful variable for gaining a better understanding of effective learning processes as well as academic outcomes; also, pupils' perceptions of potential barriers to learning, and their ability to overcome these and engage with the learning process are expressed in pupils' behaviour intentions, and it is personal perceptions, rather than general attitudes and beliefs, which relate to learning behaviours in lessons. They conclude that pupils' intentions to learn are related to their perceptions of factors that will prevent them from learning and their judgements about whether they can engage in learning, but they admit that the results of the study per se do not show that changes in self-efficacy will lead to improvements in learning and attainment.

Oettingen *et al.* (2000) used a five-point response scale to measure German pupils' expectations of personal success in learning English as a foreign language; response scale statements included, 'much worse than my classmates' and 'much better than in other subjects' (op. cit., p 712). The study involved a researcher-manipulated evaluation of the implementation of goal-directed activities among 47 participants (aged 10 to 12 years), measuring expectations, goals, efficacy and persistent effort, and attainment. A significant pattern emerged in which expectations were correlated with persistent effort, and correlations were also found between expectations of success and pupils' self-reported efficacy. The evaluation had divided the sample into three experimental groups: the first 'fantasy-reality contrast' group had been asked to imagine and elaborate their desired goals in relation to succeeding in learning English, and then to contrast these desires with their perceptions of impeding reality; the second 'positive fantasy only' group was asked only to imagine and elaborate desired goals; the third 'negative reality only' group was asked only to list and elaborate negative aspects of present reality that could impede their success in learning English. Analysis of the results of all measures taken revealed that the strongest link between pre-test expectations of success and later perceptions of self-efficacy was in the contrast group. However, members of the

¹⁴ Learning behaviours were defined as 'listening, paying attention to the teacher, asking relevant questions, working on tasks...talking with friends instead of working and playing about' (Norwich and Rovoli, 1993, p 312).

contrast group whose expectations of success had initially been high or low had shown more and less persistent effort respectively than had members of the other two groups. Three months after the tests, the links between high expectations and teacher-graded academic performance tended to be stronger in the contrast group than in the other two groups, and performance was not weaker than members of the other two groups when expectations had been low at the start. Oettingen *et al.* conclude that indulging in fantasy-reality contrasting activities assists pupils in maintaining on-task persistent effort in learning, particularly where expectations of success are high. However, pupils whose expectations of success are low can benefit from fantasising about their desired goals because, it is claimed, such measures lead to moderate goal commitment and persistent effort (Oettingen *et al.*, 2000, p 720). Mental contrasting is, furthermore, a skill that can be taught and mastered through practice.

Self-esteem is an aspect of learning behaviour that is also identifiable in the Kaplan *et al.* (2002) study of the impact of classroom goal structures on pupils' behaviour. The study explored relationships between teacher-reported (36 maths teachers) and researcher-observed goal structures in maths lessons in five ethnically diverse US high schools, and the perceptions of classroom goal structures and learning behaviours of 507 9th grade pupils (aged 14 years). Pupils were surveyed to collect additional data on their personal goal orientations, perceived self-efficacy, views about classroom goal structures and self-reported behaviour in lessons. Data on pupils' background variables were also collected from school records. The *Patterns of Adaptive Learning Survey* (PALS) (Midgley *et al.*, 1997) was used to assess pupils' judgments about their abilities to learn and complete maths tasks. Hierarchical linear modelling (HLM) (Bryk *et al.*, 1998) was used to analyse relations among classroom characteristics and pupil characteristics. Results revealed that low self-efficacy together with low maths grades and male gender were positively correlated with disruptive behaviour in lessons (Kaplan *et al.*, p 198). However, after controlling for pupil-level variables, including pupils' personal goal orientations, it was found that classroom goal structure was an important predictor of the variance in pupils' behaviour in lessons. This result will be discussed in more detail in the section focusing on contextual factors (section 4.4.4).

(b) Curriculum-linked behaviours: motivation and 'on-task' behaviours

Pupils' motivation for learning is explored in four of the five studies, and two of these link motivation to goal orientation. Oettingen *et al.* (as above) found that the striving to meet desired goals was more persistent among pupils aged 10 to 12 years if positive outcomes were made more meaningful, feasible and accessible, and pupils had high expectations of success. The motivation to succeed among pupils in the study was found to differ in accordance with their allocation to the three experimental groups; pupils in the contrast group with high expectations showed higher levels of motivation (as measured by persistent effort) than their peers (with high expectations) in the other two groups. However, immediately after the experiment, pupils with low expectations in the contrast group tended to exert less effort than students in all other groups. But when persistent effort was measured again two weeks and three months after the experiment took place, pupils with low expectations in the contrast group did not show weaker performance than those in the other groups. As a result, low expectations and early measures of persistent effort (motivation) did not translate into weak performance for pupils who mentally contrasted desired goals with perceived impediments en route to achieving success.

Kaplan *et al.* (2000) sought to discover whether achievement goal theory of motivation in education was related to pupils' disruptive behaviour through

classroom, rather than personal goal orientations. In a previous study (Kaplan and Maehr, 1999), research had shown that pupils' personal mastery, goal orientations were negatively related to reports of disruptive behaviour and that pupils' personal performance-approach goals were positively related to reports of disruptive behaviour. In the present study, it was found that motivation for learning was enhanced when teachers conveyed mastery goal orientations, and that messages encouraging performance goal orientations led to higher levels of disruptive behaviour. The results were constant after controlling for pupils' personal characteristics and goal orientations. The authors recommend that teachers emphasise mastery goals through the types of tasks they set, the way pupils' participation is motivated and facilitated, and the ways in which pupils' engagement and achievements are recognised and evaluated.

McDermott *et al.*'s (2001) study of classroom behaviour among a nationally representative sample of 1,268 pupils aged 7 to 17 years included motivation among its many variables. After collecting data on academic achievement and cognitive levels, learning/disruptive classroom behaviours, socio-economic status, and social-emotional adjustment to school through a series of surveys, psychological tests, observations, and use of school records, exploratory and confirmatory latent structure analysis identified motivation as one of four distinct¹⁵ and generalisable student performance factors; the other three were disciplined behaviour, verbal learning and non-verbal learning. Motivation as a generalisable factor in student performance was recognised as a bipolar dimension which, when measured, would 'yield high scores for students with substantial motivation and generally positive attitudes to learning tasks, all in the absence of behavioural signs of fearful shyness or active withdrawal' (*op. cit.*, p 68).

Subsequent analyses – multiple analyses of variance (MANOVA), applying student age and sex as blocking variables and the four performance factors as dependent variables – revealed significant effects, some of which related to motivation. It was found that boys and girls enter school with essentially equal levels of motivation, but that girls' motivation exceeds that of boys between ages 7 and 10 years. At age 10 or 11 years, the gap closes. However, motivation levels decrease with age for both sexes, with girls maintaining relative superiority over boys throughout the school years. Knowledge of students' motivation was also found to be necessary in general predictions of students' grades and behavioural outcomes, which could not be predicted using measures of verbal and non-verbal learning or disciplined behaviour exclusively. The authors also refute the use of motivation theory to support the view that decreased levels of motivation account for girls' poorer non-verbal learning (and related maths achievement), since their results indicate that motivation levels for girls remain higher than for boys.

Norwich and Rovoli (1993) addressed the issue of sample pupils' motivation in learning maths and English as a component of (measures of) subjective norm, which they describe as 'the outcome of whether the person believes that important others approve or not of the behaviour...and the motivation to comply with these perceived prescriptions' (*op. cit.*, p 309). Statements relating to motivation to comply, such as "My teachers think I should learn maths/English", and "I usually do what my teachers think I should" (*op. cit.*, p 312) were measured using a five-point

¹⁵ In analyses, correlations between the four factors were found to be modest. Positive correlations between motivation and verbal and non-verbal learning factors were 0.26 and 0.25 respectively, and there was an inverse correlation of -0.14 between motivation and disciplined behaviour. Thus, the authors claimed that the four factors were fairly independent measures of student performance (McDermott *et al.*, 2001, p 69).

agree-disagree scale. Results indicated that subjective norm (including motivation to comply) was an independent and low-to-moderate predictor of preventive factors in maths lessons, but subjective norm was not consistently predictive of behaviour intentions. By contrast, other factors had been found to be better predictors of behaviour intention and learning behaviour (see earlier). Discussing their findings, the authors conclude that attainment in school learning is attributable to a combination of cognitive, teaching and motivation-affective factors, and not just motivation-affective ones alone.

As Table 4.1 showed, the five studies cover a range of learning behaviours and, collectively, they address both the 'learning-promoting' and 'learning-hindering' behaviours, and nearly all the review-specific keywords for learning behaviour. However, no one study includes all the keywords. Activities and attitudes describing participation, engagement, independent activity, collaboration, responsibility, and responsiveness are frequently grouped under the broader category of 'learning behaviours' and described by statements such as, 'listening to the teacher' and 'working hard'. By contrast, however, disruptive and inattentive behaviours are usually separately identified and measured.

In Ben-Ari and Kedem-Friedrich's (2000) study of the relationships between social, collaborative learning activities and cognitive growth, the researchers measured 'on-task interaction'. They hypothesised that, in heterogeneous classes, teachers who encouraged and developed interactive learning behaviours in the classroom (the 'developer role') would see greater cognitive growth in their pupils than their colleagues who closely supervised and directed learning (the 'supervisor role'), and did not facilitate interactive learning among pupils. The learning behaviours were also located within the context of teaching in accordance with 'Complex Instruction' methods (Cohen, 1990), in which all the study's participant teachers had been trained. The main aim is reported by the authors to be 'meaningful access of all pupils to the learning process in the undivided heterogeneous class...by altering the structure of the learning situation and teachers' beliefs, so that pupils' task-related behavior becomes more academically functional and facilitative of learning' (Ben-Ari and Kedem-Friedrich's, 2000, p 159). In this particular study, pupils' learning behaviours were divided into three categories for measurement purposes: verbal interaction (such as discussing, clarifying, raising suggestions, asking and answering questions); non-verbal interaction (such as manipulations with materials, performing technical parts of a task, measuring and collecting data, building models); and no interaction (individual behaviours such as reading and writing without interaction). In terms of this review's keywords, therefore, the research particularly addresses communication, collaboration, independent activity, participation, engagement and responsiveness. The study's results showed that there were positive correlations between increased on-task social interaction in the classroom and the 'developer role' in teaching, and negative correlations with the 'supervisor role'. Furthermore, the teachers' indirect influence on cognitive growth was shown to exist only via the facilitation of verbal on-task interaction, which was positively related to the 'developer role' and negatively related to the 'supervisor role'. The analysis also revealed that verbal on-task interaction was of greater benefit to 'low status' than to 'high status' students (who had been divided into two groups around the mean for academic status on the basis of teacher evaluations at the start of the study).

McDermott *et al.* (2001) evaluated pupils' classroom learning behaviours from teacher-reported observations of pupils during a retrospective two-month period, using a 29-item scale that included 'attentiveness, responses to novelty and correction, observed problem-solving strategy, flexibility, reflectivity, cooperative

learning and consistency' (op. cit., p 66). In the analysis, all measures for learning behaviours were grouped in four categories – Competence Motivation, Attitude Towards Learning, Strategic/Flexible Learning and Persistent/Attentive Learning – and these were subsequently grouped under the performance measures of Motivation and Disciplined Behavior¹⁶ in the four-factor structure referred to earlier. Results of analyses showed that Motivation and Disciplined Behavior were significant predictors of teacher-assigned grades, but played no such role in the prediction of standard tests scores. Disciplined Behavior was negatively related to delinquency and Motivation was negatively related to lethargy. As was mentioned earlier, Motivation and Disciplined Behavior were essential components of an equation that includes verbal and non-verbal learning for the prediction of grades. Finally, Motivation and Disciplined Behavior were the only reliable predictors of behavioural outcomes. It is not possible to make further analyses of the relationships, if any, between particular learning behaviours and learning or behaviour outcomes because the authors do not detail the full list of learning behaviours or their specific allocation to either the Motivation or Disciplined Behavior category.

Learning behaviours are also measured in the study by Norwich and Rovoli (1993). A self-report questionnaire that comprised a series of five-point and eight-point (agree-disagree) scales was used. Its purpose was to elicit participating pupils' views of their own past behaviours in maths and English lessons; their intentions with respect to future behaviours; and their perceptions of the types of behaviours that could promote or impede learning these subjects. The study also sought the views of teachers on their pupils' past learning behaviours in lessons, using a teacher version of the pupils' five-point past learning behaviour scale. This scale comprised the following statements: listening carefully and paying attention to the teacher; trying and working hard; messing about in class; playing games or talking to friends instead of working; making sure one understands what one is taught. The same five behaviour statements were used for past and future learning behaviours. Norwich and Rovoli's study also includes learning behaviours that are deemed to both facilitate and impede learning. The eight-point scale measuring behaviours that might prevent learning (perceived preventive factors) included statements such as, "My friends will encourage me to do something else during the lesson" and "I will give up trying when it starts to get difficult" (op. cit., p 312). Results of partial correlation analysis showed that past learning behaviour was an independent and moderate predictor, in 11 out of 12 situations, of behaviour at the start of lessons (recorded in observations by teachers), behaviour intentions, preventive factors and self-efficacy. Pupils' reports of learning behaviour during lessons was also predicted by their past learning behaviour in both subjects in all four lessons. There were no significant differences (from pupils' reports) in the past learning behaviour or behaviour intentions of pupils with low and average attainment, but the low attaining pupils had significantly higher scores on preventive factors for the first maths and English lessons, and their teachers also rated them as displaying fewer overall past learning behaviours than average attaining pupils. In observations, low attaining pupils were recorded as engaging in significantly fewer learning behaviours in both maths lessons, but not in English lessons. Results of affective variables had moderate to strong correlations between English and maths lessons. The authors conclude that pupils' perspectives about learning maths and English were fairly consistent across these two curriculum areas, and that pupils' behaviour intentions were derived from perceptions (their

¹⁶ High scores representing 'regulated, attentive, and persistent learning behaviors and the absence of acting-out types of behaviors' (McDermott *et al.*, 2001, p 68).

own and teachers') of their past learning behaviours and of potential subject-based preventive factors.

Oettingen *et al.* (2000) do not include as wide a range of learning behaviours but do explore pupils' participation and engagement (through measures of persistent effort) in learning English, and their independent activities and responsibility (self-regulation of goal attainment). Persistent effort was found to be linked to pupils' expectations of success, and high expectations tended to produce greater effort where pupils had more successfully adopted strategies for self-regulation of goal attainment (that is, those in the fantasy-reality contrast group).

(c) Behaviours linked to social context of the classroom

Kaplan *et al.*'s (2002) study is aimed at exploring whether particular types of classroom goal structures may be related to behaviours that teachers tend to view as impeding learning, such as persistent disruptiveness. Their study focused on maths lessons, which they claim have a tendency to be performance goal-oriented, and included ethnically diverse, mixed-sex samples because gender and ethnicity variables had both been linked to disruptive behaviour (Cameron, 1998). Three hundred and eighty-eight pupils aged 14 years completed self-report five-point scales for which 1 = *not at all true* and 5 = *very true*. The pupils answered questions about whether they engaged in annoying or disruptive behaviours, whether they believed that they could successfully engage in and persist with maths studies, and the reasons for their attitudes towards, and behaviours in, learning maths. In addition to exploring pupils' perceptions of their own disruptive or non-disruptive behaviour, and their ability to maintain sustained engagement in learning maths, the study also investigated pupils' personal goal orientations, which covered learning behaviours, such as responsibility – for example, "An important reason why I do my math work is because I want to get better at it" – and participation – for example, "I like math work that I'll learn from, even if I make a lot of mistakes" and "One reason I might not participate in math class is to avoid looking stupid", (Kaplan *et al.*, 2002, pp 210-211).

When the relationships between pupils' responses to these measures and aggregated student perceptions of classroom goal structures were analysed, it was found that disruptive behaviour was significantly related to performance-approach, classroom goal structures. Such approaches are represented in the following set of questions from the teacher questionnaire: 'I give special privileges to students who do the best work; I display the work of the highest achieving students as an example; I help students understand how their performance compares to others; I encourage students to compete with each other; I point out those students who do well as a model for the other students' (op. cit., p 211). In contrast, the results of the study showed that disruptive behaviour was negatively related to mastery of classroom goal structures. This type of approach is described by the following questions from the teacher questionnaire: 'I make a special effort to recognise students' individual progress even if they are below grade level; during class, I often provide several different activities so that students can choose among them; I consider how much students have improved when I give them report cards grades; I give a wide range of assignments, matched to students' needs and skill level' (ibid).

The social context of schooling is the main thrust of Ben-Ari and Kedem-Friedrich's study (2000), which seeks a solution to problems inherent in many heterogeneous classes. They argue that homogeneity is not the answer to dealing with different levels of pupil abilities or different learning styles. Instead, they explore the impact of restructuring the learning process and introducing more on-task interaction between pupils. Their study highlights one type of context – heterogeneous classes

– and three integral interactive processes: teacher-pupil interaction; pupil-pupil interaction; and pupil-curriculum interaction.

The authors investigated the impact of different teaching styles on the amount of on-task verbal interaction between pupils, and found that the teachers who adopted a 'developer' role would permit and encourage pupils to discuss tasks in hand and use one another as resources for learning. Such teachers not only stimulated interaction, but also recognised their own role as a catalyst rather than a director or supervisor of learning. Teachers who did not develop verbal on-task interaction tended to control learning by giving detailed instructions, intervening and helping with decision-making when pupils faced difficulties, all of which reduced pupils' opportunities to interact with one another. All the participant teachers in the study had been trained in 'Complex Instruction' methods, which aim to encourage functional and facilitative learning by altering the structure of learning processes and teachers' beliefs; nevertheless, they varied in their approaches – some observed as 'developers', others as 'supervisors'. Ben-Ari and Kedem-Friedrich state that these findings raise questions about the relative influence of the teaching context and teachers' training, and their personal characteristics and attitudes. (No details are provided about teachers' backgrounds or how well they attended or fared in their instruction programme, so it is not possible to link the relative influence of these variables to teachers' adoption of one or other role.)

Interaction between pupils that fosters learning is, therefore, clearly dependent upon teaching style according to this study. The authors make it clear that their results showed cognitive growth related only to verbal (and not to non-verbal) on-task interaction. Allowing pupils to work together to discuss and solve problems, to raise issues and obstacles and to capitalise upon each other's input was conducive to cognitive growth. However, there was a significant difference between the impact on low and high achievers. Cognitive development change in high achievers was unrelated to either the teachers' role or to their classroom activities. But, the low achievers' cognitive development change was shown to be related to classroom activities and, therefore, indirectly to teachers' role as 'developer' or 'supervisor' (Ben-Ari and Kedem-Friedrich, 2000, p 162). In their discussion of the results, the authors suggest that the presence of high achieving peers fulfils a facilitative role for low achievers, but the results of the study point to the need to restructure learning so that it can also meet the needs of the high achievers by providing them with 'knowledgeable others' to enhance their learning experience and further augment their cognitive development.

Just as peer on-task interaction is dependent on teachers' roles, it follows that teachers and peers in different social contexts of learning shape pupils' interaction with the curriculum. That interaction may be verbal, non-verbal or non-existent.

4.4.4 To what extent are learning behaviours linked to curricular areas in school contexts?

Three of the five studies related to specific curriculum subjects. Two were concerned with mathematics, one with English, and one with modern foreign language learning. Although Norwich and Rovoli's study explores affective factors in relation to the learning of secondary maths and English, the lessons do not appear to have been chosen for particular subject-specific reasons. Previous research by Norwich and Duncan (1990), and Norwich and Jaeger (1989) had explored affective factors in maths and science learning, and the authors state that by continuing to study maths and extending the research to include English they would have, 'the

opportunity to determine the consistency between affective factors for the same pupils in two school subjects'. Therefore, the subjects themselves appear to be fairly arbitrary, whereas the comparison of participants' affective factors from one lesson to the next (of a given subject) is the key variable. Kaplan *et al.* (2002) also locate their study in maths lessons, but state that maths was chosen because it was deemed to be a subject in which performance orientation is common; the study did not focus on the specific features of the subject, but of goal orientation of teachers and pupils. Oettingen *et al.* (2000) studied pupils' motivation for learning a modern foreign language (English). They tested fantasy realisation theory in this context, but do not say that the subject was of particular importance or significance, other than that it was something that the pupils were experiencing for the first time. Nevertheless, the five studies do reveal some aspects of pupils' attitudes towards (or 'relationships with') the curriculum and school contexts in general.

The impact of teaching styles on classroom behaviour arises in Kaplan *et al.*'s study. Pupils' interaction with the curriculum is also discussed in relation to learners' individual goal orientations. Different goal orientations are shown to produce different types of learning behaviours – whether they are mastery of learning processes, demonstrating ability, or avoiding participation and engagement with schoolwork. Interactions between teachers and pupils are shown to convey messages about goal orientations that influence pupils' learning behaviours (at least in terms of disruptiveness) and pupils' relationship with the curriculum over and above pupils' own goal orientations. The authors state that teachers' performance-approach goal orientations in particular supersede those of pupils with performance goals of both kinds. However, their measurement of outcomes includes only incidents of disruptiveness. They do not discuss whether non-disruptive pupils' learning behaviours (such as responsiveness, engagement and so on) were influenced by teachers' performance-approach classroom goal structures and related higher levels of disruptiveness among peers.

4.5 In-depth review: quality assurance results

The data-extraction process was lengthy, intensive and detailed. All core members of the review team re-read each of the five studies. One person carried out an initial data-extraction (answering around 130 questions) on each study and then the team discussed the results to ensure that there was a consensus about the responses given before the data was entered into the online EPPI-Reviewer® database. The team's EPPI-Centre contact simultaneously carried out data-extraction on two of the studies and the two versions of data-extraction were checked for consistency. It was found that, on the whole, there were very few differences between the results. However, the review team frequently provided more detail in many of the categories, whereas the EPPI results included more references to page numbers in the studies where detail could be found.

4.6 User involvement and impact on the review

The extent of user involvement in the review process was less extensive than desired but the time constraints meant that the fast pace of the review process made it difficult to involve users at all stages.

In the early stages, ITE trainers were consulted about the aims and framework of the review. Their responses helped to shape the conceptual framework, the search strategy and the inclusion criteria.

Following preparation of the first draft of the report, peer referees provided constructive comments that enabled the review team to ensure that the report was of relevance to policy and practice.

5. FINDINGS AND IMPLICATIONS

5.1 Summary of principal findings

The overall aim of the review was to examine existing research in order to provide information that would be useful to tutors in enhancing ITE or in behaviour management. In deciding upon a review question, the team decided to focus on the purpose and *outcomes* of behaviour management; that is, the promotion of effective learning behaviours. Given the requirement for trainees to develop a knowledge base that underpins their practice, it was decided to place emphasis on what is known about the theoretical underpinnings of learning behaviour. It was anticipated that the conceptual framework underpinning the review would have additional utility for trainees to explore and understand the determinants of learning behaviour and make sense of, and evaluate, the efficacy of the many behaviour management strategies used in school contexts.

This chapter provides an overview of the main findings from the searching and screening process, from the mapping of 46 included studies and from the in-depth review of five studies. There then follows the authors' interpretations of these findings in terms of implications for policy, practice and research. The findings have been summarised in relation to how they address the following questions:

1. How have theories been used to explain learning behaviour?
2. What is known about children's learning behaviour in school contexts?
3. What is the utility, for trainees, of the review's underpinning conceptual framework?

5.1.1 Identification of studies

Extensive searches were made for empirical studies, and reviews of empirical research, that were of direct relevance to the review question:

How do theories explain learning behaviour in school contexts?

Searches were based on a set of preliminary search terms that stemmed from the review's inclusion criteria (see Appendix 2.2). Electronic databases initially yielded extremely high numbers of potentially relevant studies. However, inspection of the abstracts revealed that many studies were not relevant. Consequently, the search strategy was refined by combining search terms; this resulted in a lower yield of studies that were more relevant to the review (see Appendix 2.1 and Figure 3.1).

The key finding from the searches was that there were no relevant studies that sought directly to inform ITE. Implications for ITE have thus been extrapolated from the review findings.

5.1.2 Mapping of all included studies

Once the searches had been completed, and more stringent inclusion and exclusion criteria had been applied to all abstracts or full-texts, the yield of directly relevant studies was reduced to 46. These studies were characterised using EPPI

core keywords and review-specific keywords. The characterisation process then enabled the team to map out (compare and contrast) the features of all 46 studies.

Researcher's use of theory

The mapping suggests that theory is rarely used to drive experimental studies that seek to establish the role of theory in manipulating, predicting, or influencing the development of learning behaviours. In the research studies reviewed, theory is more frequently 'associated' with learning behaviours in a range of ways: for example, providing background literature or possible theoretical links and explanations for the study outcomes. Clearly the methodological difficulties, costs involved (particularly if longitudinal studies are required) and time pressures for research outputs are likely to be factors that are influential in restricting this type of research endeavour. Additionally, the fact that the review question was concerned with three variables (theory, learning behaviour, and school contexts), excluded literature reviews and did not focus on strategies for behaviour management, may have influenced this finding.

Types of theories referred to

Key findings at this stage were that many of the studies included more than one type of theory. All the studies linked theories to a wide range of learning behaviours (positive and negative) in a variety of school contexts, from pre-school to secondary school. Significant, perhaps, was the finding that the frequency of developmental and behavioural theories sharply declined as the age of the children involved in the studies increased. This was not the case where other theories were concerned. Although there were decreases in the frequencies for cognitive and social theories, as children got older, the percentage declines were less substantial, and there were increases in frequencies of affective and learning theories as children got older.

Another interesting finding was that negative learning behaviours, such as disruptiveness, were more commonly found in studies about boys.

Learning behaviours

A range of terms was used to describe learning behaviours. Studies reflected the complexity of learning behaviour and were consistent with a view that behaviours used to describe learning reflect that learning in school contexts is influenced by the interaction of a range of individual, curricular and social variables. The most commonly used category was 'engagement' which occurred in 43% of the studies. In the 5 to 10 years age group, engagement, collaboration and participation are the most common learning behaviours recorded, and this is also true for the 11 to 16 year-olds. Disaffection, responsibility and self-esteem were the least frequently used learning behaviours. Learning behaviours were fairly evenly distributed across the age groups, 0 to 4 years, 5 to 11 years and 11 to 16 years. However, there was a narrower choice of learning behaviours studied in the 0 to 4 age range with the term 'problem' used (but not disruption or disaffection), and with self-esteem and self-regard not used in any of the studies. Not surprisingly, the most cited relationships were 'pupil with teacher', 'peers', and 'school/curriculum'. Interestingly, given the individual differences inherent in learning behaviour in schools, relationships concerning pupil with self, or pupil with parent occurred infrequently across all studies.

5.1.3 Nature of studies selected for in-depth review

Five studies were selected for the in-depth review. These studies had been chosen on the basis of their methodological soundness, for being explicitly driven by or explained by theory, and for representing the wide range of theories and learning behaviours that were mapped in the 46 studies. They also used methodologies that were most common among the 46 studies – evaluations or explorations of relationships – and covered the learners' age range that bounded the review, specifically 5 to 16 years. More detailed descriptions of the five studies included in the in-depth review can be found in Appendix 4.1.

5.1.4 Synthesis of findings from studies in in-depth review

It should be remembered that these findings stem from just five studies and so it is recommended that they be viewed as tentative, especially given that only one study (McDermott *et al.*, 2001) used a sample that was representative of the wider population and produced results that were generalisable.

(a) How have theories been used to explain learning behaviours in school?

Four of the five studies were 'driven by theory' because a particular theory was included in the research design and was explored or tested in the research process. In examining the methodological rigour of these studies, there is preponderance for high weight of evidence (three out of four studies). The fifth remaining study provided medium weight evidence for the use of theory to 'explain' the research findings. The evidence from these studies suggests that theories do have potential for explaining learning behaviours and assisting teachers in their choice of strategy and evaluation criteria for the promotion of effective learning.

In seeking to explain learning behaviour, there is high weight of evidence that researchers have used theories that combine cognitive affective and/or social perspectives. This is consistent with a view that learning behaviour is influenced by the interaction of how the learner thinks, feels and interacts. Given that school learning requires that pupils are task/outcome focused in the social setting of the classroom, the prevalence in studies of either (or both) social or cognitive theories is expected. However, the inclusion of theoretical explanations linked to the affective component of learning behaviour in two out of the five studies is of interest and consistent with the map of included studies. One of these studies (McDermott *et al.*, 2001) used a sample that was representative of the wider population; the other study, by Norwich and Rovoli (1993), was judged to provide high weight evidence in all categories.

(b) What is known about children's learning behaviour in school contexts?

There is strong evidence from the variables selected and terms used, that researchers have been pragmatic in selecting descriptors of learning behaviour. There is thus a preponderance in the studies of learning behaviours that result in learners starting and staying on a prescribed task, with an anticipated or required measurable outcome, in the group setting of the classroom/school (i.e. engagement, motivation, participation, collaboration, communication). Some researchers have additionally deemed these essential learning behaviours to be influenced by person-centred variables subsumed by the construct 'self-

efficacy'¹⁷ and using the terms self-esteem, self-regard, independent behaviour, and responsibility.

In the light of the researchers' choice of terms for studying learning behaviour and the need to make the review accessible to end users, findings have been grouped below in relation to the 'product' of learning (on-task); the 'process' of learning in a group setting (participation, engagement communication, collaboration etc); and the role of the 'person' (self-esteem, self-regard, self-efficacy) in influencing their learning behaviour in school contexts. It is, of course, recognised that the findings could be organised and communicated by reference to individual behaviours and/or individual studies.

'On-task' (i.e. goal /target centred learning behaviours)

Motivation and self-discipline: Not surprisingly, all studies in the in-depth review were concerned with studying the variables that relate to learners being able to start and stay on-task. These core 'on-task' learning behaviours were commonly referred to as 'motivation' and involved the 'self-discipline' needed to stay on-task to completion. Four of the five made reference to terms that described learner participation (engagement) with the task. This supports the view that researchers see securing engagement/involvement with the task as an important component of effective learning.

Findings from individual studies provided medium to high weight evidence of the following:

- Persistent effort and goal attainment can be enhanced by teaching strategies to pupils.
- Attainment in school learning is attributable to a combination of cognitive, teaching, and motivation-affective factors.
- Achievement goal theory of motivation has focused on the meaning that students construe for school learning and can explain motivation and discipline, and/or self-regulation (Ames, 1992; Anderman and Maehr, 1994; Nicholls, 1989)¹⁸.
- Some 'learning to learn' behaviours can be identifiable and teachable: for example, goal-setting and achievement.
- A curriculum that focuses on 'performance'¹⁹ learning is less motivating than a pedagogy and curriculum that seeks to secure 'mastery'²⁰ learning.
- Classroom goal structure is an important predictor of variance in pupils' lesson behaviour.
- Motivation is improved if positive outcomes are made meaningful, feasible and accessible to pupils.
- Personal mastery, goal orientation is negatively related to disruptive behaviours.
- Performance-approach goals are positively related to disruptive behaviour.

¹⁷ Giallo and Little (2003) '*Self-efficacy is conceptualised as an individual's judgement of his/her ability to execute successfully a behaviour required to produce certain outcomes (Bandura, 1986; Gibson and Dembo, 1984). Such beliefs are thought to be an important moderator between an individual's knowledge and skills and his/her behaviour*' (p 22).

¹⁸ This focuses on the *meaning* students construe for school and learning.

¹⁹ Performance goals refer to a focus on social comparison and demonstration of competence (Ames, 1992).

²⁰ Mastery goals refer to a focus on learning, improvement and mastering skills (Ames, 1992).

- Motivation and disciplined behaviour are significant predictors of teacher assigned grades but play no part in predication of standard test scores.
- Motivational levels decrease with age for both sexes, but girls maintain higher level of motivation than boys during school years.
- Problem behaviours – that is, disaffection and disruption – are not normally explained differently by theory but by reference to positive learning behaviours (i.e. motivation, engagement and participation).

Participation: learning behaviours associated with the social context of school learning

Terms used were 'participation', 'responsiveness', 'collaboration', and 'communication'. Three of the five studies made explicit reference to one or more of these terms; one referred to the social dimension of pupil's perception of success. Findings from individual studies provided medium to high weight evidence of the following:

- Social interaction is pivotal to cognitive development and influences the development of learning behaviour in school contexts.
- The development of learning behaviour in school contexts is an interactional process underpinned by relationship building.
- Heterogeneous grouping paired with a 'developer' teaching style enhances pupil engagement, social participation, and verbal interaction. This is linked to improved attainment for average to lower attaining pupils.
- Interactions between teachers and pupils convey messages about goal orientation (mastery v/s performance) and influence pupils' learning behaviours, relationship with the curriculum, and in turn pupils' own goal orientations.
- Competitive classroom contexts, that have a performance-approach to teaching and learning, are linked to disruptive behaviours.
- Homogeneity is not always the best way of addressing different levels of pupil abilities or different learning styles. Stronger impact (on engagement and participation and indirectly on learning outcomes) is achieved by re-structuring the learning process and introducing more on-task verbal interaction between pupils; pupils benefit from being grouped with 'knowledgeable others' to enhance their learning experience and augment cognitive development.

Person-centred learning behaviours: self- efficacy

Behaviours relating to the individual's 'relationship' with him/herself are seen by researchers to play a crucial role in key learning behaviours, such as motivation, engagement participation and independent activity. Descriptors used to define 'person-centred' learning behaviours were 'self-esteem'/'self-regard' and 'independent activity'. Three of the studies referred directly to either one of these; the other two included self-perception, perceived optimism and socio-emotional adjustment as person-centred variables linked to motivation. Findings from individual studies provided medium to high weight evidence the following:

- Self-efficacy, conceptualised as '*an individual's judgement of his/her ability to execute successfully a behaviour required to produce certain outcomes*²¹, (derived from cognitive social learning theory, for example, Bandura, 1982) is important to the understanding of learning behaviour.

²¹ Giallo and Little (2003) '*Self- efficacy is conceptualised as an individual's judgement of his/her ability to execute successfully a behaviour required to produce certain outcomes (Bandura, 1986; Gibson and Dembo, 1984). Such beliefs are thought to be an important moderator between an individuals knowledge and skills and his/her behaviour*' (p 22).

- Past learning behaviour is the strongest predictor of pupils' self-efficacy and their current learning behaviour.
- Pupil's *intentions* to engage in learning (influenced by self-efficacy) are more significant than externally applied pressures from significant others.
- Pupils' perception of the potential barriers to learning and their ability to overcome these are expressed in pupils' behaviour *intentions*.
- Motivation and self-discipline are reliable predictors of learning behaviour and achievement.
- The development of behaviour for learning is essentially a responsive process during which the learner seeks to make sense of the learning situation from his/her perspective.
- Self-esteem and self-regard are linked to pupils' perceived self-efficacy.
- Self-efficacy is a useful variable in gaining a better understanding of effective learning processes and academic outcomes.
- Expectations of personal success correlate with persistent effort.
- Low self-efficacy and low attainment are correlated with disruptive behaviour in males.
- The recognition and valuing of individual student achievement is negatively related to disruptive behaviours.
- Expectation of personal success supports self-regulation of cognitive activity.
- Low self-efficacy and low attainment are correlated with disruptive behaviour in males.
- Problems around self-efficacy and behaviour have little to do with subject-specific factors and more to do with how the learner identifies with the immediate factors and immediate judgements/anxieties in the classroom context.

(c) What is the utility, for trainees, of the review's underpinning conceptual framework?

The conceptual framework for this review is based on Ecological Systems Theory (Bronfenbrenner, 1989), which asserts that human development cannot be viewed in isolation from the wider contexts of an individual's interactive relationships in social and cultural environments. The review team made the following assumptions:

- Behaviour manifestations do not occur in isolation but are the product of interactive processes between internal and external factors.
- Behaviour in relation to social interactions can be better understood given a greater knowledge of social, affective and behavioural theories.
- All learning behaviour is rooted in relationships and positive relationships facilitate learning.

The stance taken by the review team, informed from background literature, was that there is an interdependent relationship between behaviour and learning. The word 'relationship' as used in this review reflects dynamic interdependence between two or more variables identified as pertinent to the development of learning behaviour in school contexts. The team also held the view that the fostering of learning behaviour or 'behaviour for learning' is the foundation for effective behaviour management. This contrasts with a view that 'learning to behave' is the central focus of behaviour management in school contexts.

The model derived by the team from background reading and professional experience suggests that 'learning behaviour' in school contexts is considered to arise from the learner's relationship with self; with the curriculum; and with others,

including teachers and peers. Learning behaviour in school contexts thus has affective (feeling), cognitive (thinking) and social (participating) components. All these relationships are in turn influenced by the individual's interaction with cultural and social components of 'out of school' influences, such as the family, outside agencies, policies, and community, etc. While these influences on learning behaviour are clearly important, the review is restricted to school contexts and does not directly focus on these external influences.

It is accepted that the conceptual framework underpinned the review and influenced the findings from this review. The framework strongly influenced the selection of our research question, our inclusion criteria and choice of relationship keywords (peers, teachers, school and parents). The interdependence of the underlying conceptual framework and findings from the review are reflected by the following findings:

- Learning behaviours identified by the review were consistent with the view that learning behaviour develops from the interaction of the individual with contextual and social factors. Support for these dynamic relationships are evidenced by the fact that the most frequently occurring learning behaviours within the review were described by the terms 'engagement', 'collaboration', 'participation', 'communication' and 'independent activity'. Intrinsic to these descriptors are notions of interaction and interdependence within, and between, the individual and his/her social and academic environment.
- Learning behaviours and relationships described within the review were consistent with a view of interdependence between individual and curricular and social factors in influencing the learning behaviours in classroom contexts. Additionally, theoretical perspectives identified affective, cognitive and social factors intrinsic to learning behaviours.

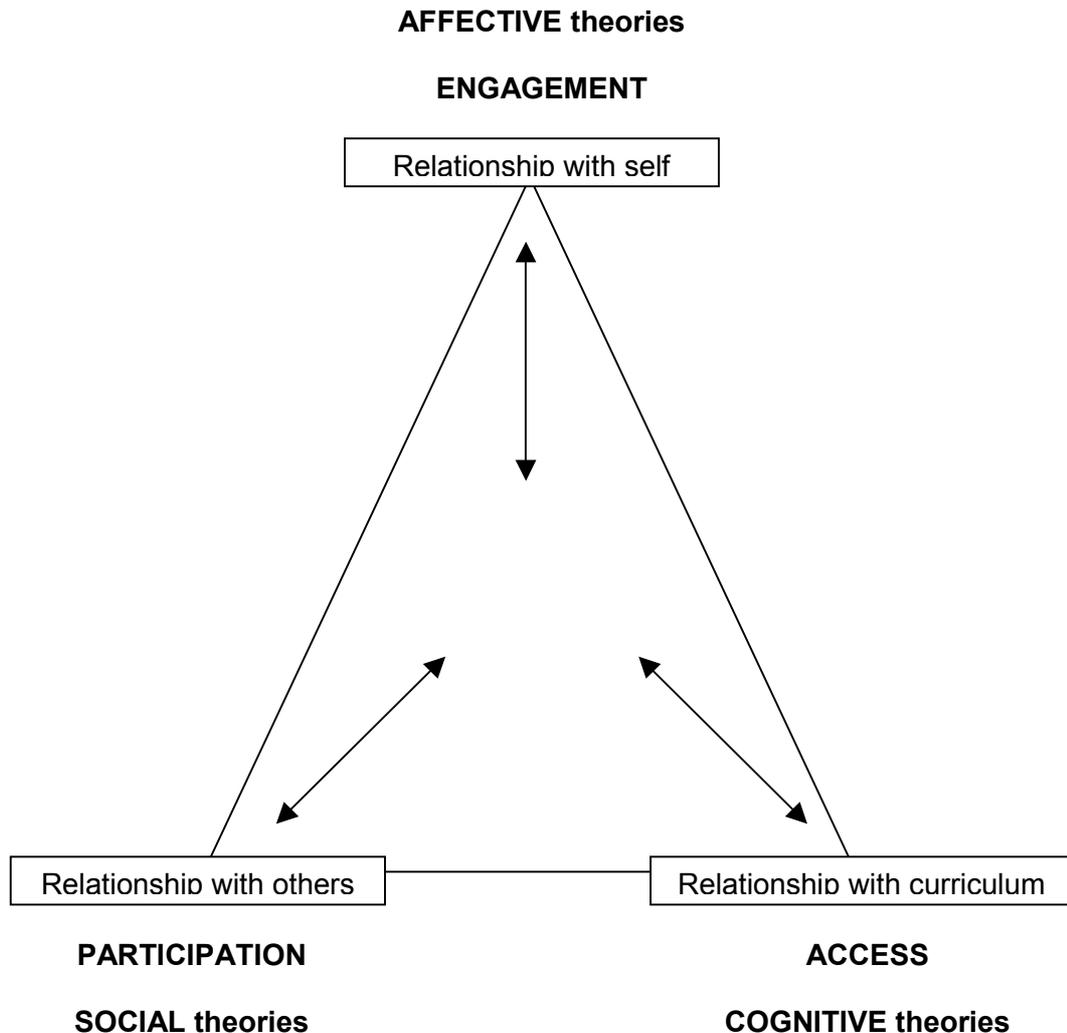
Possible uses of the model for trainees and their tutors

- To allow the complexity of learning behaviour to be addressed during ITE by examining the three components: relationship with the curriculum, relationship with self, and relationship with others, before trying to tackle 'problem behaviour in the classroom'.
- To link the development of learning behaviour with subject teaching.
- To build confidence initially through a focus on developing learning behaviour rather than a fear about facing classroom behaviour problems.
- To build trainee competence by exposure to, and use of, strategies that promotes curriculum access, engagement, participation and self-efficacy.
- To recognise the different starting points for trainees in relation to their previous learning and experiences, and the implication of different routes for ITE in developing behaviour for learning.
- To enhance assessment procedures for learning behaviours.
- To be aware of the outside influences on learning behaviours but not use them as an excuse for not addressing the learning needs of pupils in the school.
- To accept that learning behaviours are subject to the influence of the learner's perception and past experience. It follows that the collection of more and more strategies will not, in itself, suffice to protect trainees from experiencing behaviour problems in their classrooms.

Figure 5.1 depicts a possible extension to the model developed in consideration of the findings from the review. The model allows learning behaviour to be considered in relation to inclusion. It allows for the development of learning behaviour and the

identification of difficulty, difference and diversity that may arise from biological, sociological or psychological factors that may affect relationship with the curriculum (for example, dyslexia); relationship with others (for example, autistic spectrum); and relationship with self (for example, emotional and/or mental health problems). It is important, of course, in explaining learning behaviours via a model that the interactive and interdependent nature of the variables is made explicit.

Figure 5.1: Extension to conceptual model underpinning the review



The model describes 'learning behaviour' in school contexts as a function of the interaction of a triad of relationships: relationship with self; relationship with the curriculum; and relationship with others. This was the original conceptual model proposed by the review team to enable trainee teachers to conceptualise 'learning behaviour'.

Interpretation of the review findings suggest that it may be helpful to consider an extension to the model via the notions of 'access', 'engagement' and 'participation', being essential components of effective inclusion in group settings. In practical terms, the curriculum should be accessible to learners, who in turn need to be able to engage with, and respond to, the curriculum. Given that school learning is characteristically undertaken in group contexts, learners need also to be able to participate with their teachers and peers.

The dominant theories that may contribute to an understanding of factors involved in learning behaviours are labelled as 'affective' (self/engagement), 'cognitive' (curriculum access) and 'social' (social/participation). It is acknowledged that a combination of theoretical perspectives may be needed to understand the relationship components of learning behaviours.

The model seeks to describe possible components and theoretical links involved in learning behaviours in order to enable the complexity of issues involved in behaviour management to be conceptualised by trainee teachers. It is accepted that the model does not adequately reflect the dynamic interaction of the factors described.

5.2 Strengths and limitations of this review

Strengths

The systematic review process has been powerful in enabling us (i) to identify empirical evidence in relation to how theories explain learning behaviour and (ii) to specify particular school contexts. Additionally, the focus upon process and the inclusion of regular quality assurance and quality assessment procedures helped to minimise bias, maximise parity, and provide 'weighted' conclusions and recommendations.

Limitations

Due to the timeframe of the review and the requirement for the review findings to inform practice directly, the Review Group restricted their search to empirical studies. It is acknowledged that, in adopting this search strategy, the inclusion of theoretical discussion pieces, and reviews of empirical research were not included beyond the keywording stage. In order to manage the review within the timeframe allocated to the process, it was also necessary to apply strict exclusion criteria. Consequently, studies that had to be excluded were, for example, those that linked theories and behaviours outside school contexts, but which could usefully inform behaviour management within educational settings. The review's conceptual framework included principles derived from Bronfenbrenner's 'Ecological Systems Theory' (1989) and sought to understand the interactive processes that impact upon pupils' learning. By limiting the review to a focus upon in-school contexts (in order for the review to be manageable within its timeframe), it is probable that many studies examining other determinants of behaviour (such as relationships within the family or community, or psycho-biological factors) were excluded. Consequently, the review did not fully address the range of possibilities integral to the 'Ecological Systems Theory'.

Another limitation is the nature of selection of studies for the in-depth review. Given the time limitations, it was not possible to apply criteria systematically for studies to be included in the in-depth review. Five studies were thus selected that related to the whole of range of themes identified in the map and were of a reasonable quality as judged by the review authors, and supported by the EPPI-Centre weight of evidence judgements. Therefore, this methodological strategy is selective and illustrative, rather than systematic.

5.3 Implications

5.3.1 Implications for policy for ITE in behaviour management

The implications for policy have been informed from the following key findings:

- No studies were directly concerned with the implications for ITE about any theoretical explanations of learning behaviour in school contexts.
- Theories have been used to explain existing learning behaviours but were not designed to examine the efficacy of predicting learning behaviour.
- Learning behaviours and relationships described within the review were consistent with a view of interdependence between individual and curricular and social factors in influencing the learning behaviours in classroom contexts.
- The use of theories supported the view that learning behaviour is considered by researchers to be influenced by cognitive, social and affective components.
- Researchers have different priorities for learning and different combinations of theoretical perspectives, depending on the age range of pupils studied, particularly in pre-school settings.
- Individual pupils' perception of potential barriers to learning and their ability to overcome these are expressed in pupils' behaviour *intentions*; self-efficacy and self-esteem are seen as important in understanding individual differences in learning behaviour.
- Social participation in learning is influenced by groupings, teaching style and opportunities for verbal interaction.
- The mapping of included studies reflected researchers' preferences for either not focusing on a specific curriculum area, or using cross-curricular contexts. Researchers *perceive* that there may be generic components of learning behaviours, although some components may be subject-specific.

Implications

- The scarcity of studies that seek to provide an evidence base for theoretical explanations of such an important area for education as 'learning behaviours', and additionally do not focus on ITE, suggests that there may be crucial gaps in this area of research if a proactive stance to behaviour management is to be adopted in schools.
- The identification of differing priorities for learning (i.e. social behaviour) and preference for linking cognitive theories with social theories in the early years suggest that the link between affective and cognitive development needs to be further emphasised in research into early learning behaviour. This may be particularly pertinent, given the finding that self-efficacy is an important determinant of school learning behaviour. English National Behaviour and Attendance Strategies (DfES, 2003) promote the integration of social, affective and cognitive factors for developing appropriate learning behaviour. Given the government's commitment to inclusion, it may be valuable to consider learning behaviour as a continuum for development from essential early years' responsive social behaviour, towards the independence and self-discipline needed for secondary phase schooling and lifelong learning. Inclusive classrooms are likely to contain a mix of developmental levels of learning behaviour that will require the perspective of 'addressing diversity' rather than 'normalisation' to an expected age linked norm. Problems experienced at 'transition' may be reduced if pupils are not expected to change their learning behaviour suddenly but are supported to develop relevant aspects of their

existing repertoire. For example, a focus developing 'responsibility' (a low incidence behaviour in the review studies) and self-efficacy in the earlier years may reduce the occurrence of behaviour problems in later years.

- Findings from the review support the view that researchers perceive that there may be generic components of learning behaviours, although some components may be subject-specific. These subject-specific components may explain pupils' differing attainment and behaviours in different lessons. It is reasonable to conclude that the promotion of effective learning behaviour can be considered to be intrinsic to effective teaching and learning, and should be addressed by teachers/tutors and mentors through their subject teaching.
- ITE training could be enhanced by the provision of opportunities for trainees to become familiar with assessment and identification approaches that include social, emotional and behavioural indicators of learning; this should foster the informed use of a range of strategies rather than over-reliance on behavioural approaches. Contemporary approaches to developments in pedagogy for diversity and inclusion have included cognitive (for example, multiple intelligences (Gardner, 1993), thinking skills, and learning styles), affective (for example, emotional intelligence), and social (social skills training (Walker *et al.*, 1995), including group work, collaboration, problem-solving and negotiation) underpinnings.
- Interpretation of the review findings suggest that a sound professional knowledge and understanding of the theoretical underpinnings of learning behaviour could contribute to the development of conceptual frameworks for effective teaching and learning.
- Findings from the review and the conceptual framework underpinning the review suggest that behaviours do not occur in isolation but as the result of the dynamic relationships of the learner with him/herself, with others and with the curriculum. It follows that ITE may be enhanced by systematically addressing this 'triangle of influence' on learning behaviour through subject teaching and school experiences.
- While QTS Standards are mandatory, SEN specialist core standards for emotional and behavioural difficulties remain advisory. It may be useful to consider the inclusion of some core SEN specialist standards into any national mandatory NQT requirements. There is a need to root behaviour management within the ITE subject curriculum with additional input from SEN specialists – not the other way round.
- ITE students could usefully experience school placements that offer opportunities to bridge 'special' and 'mainstream' provision. Special schools may have a useful role in ITE via the exchange and evaluation of specialist and mainstream approaches for the promotion of effective behaviour for learning.
- Relationship management is an important element in the promotion of effective learning behaviour and could usefully be covered in ITE courses for trainees. For school pupils, the integration of elements of personal, social and health education (PSHE) and Citizenship within subject teaching may serve to enhance their skills in relationship management needed for effective learning in group contexts.

- Subject teaching is supported by national guidance which NQTs and trainees find useful when faced with teaching problems. It may be useful to consider the production of national guidance for the promotion of learning behaviour and resolution of difficulties to which students can refer and share with mentors. Such guidance, produced in collaboration with other national initiatives (i.e. DfES Behaviour and Attendance, and KS3 and Primary strategies for behaviour) would enable some consistency of training between the range of ITE providers.
- The findings support the view that central to the development of learning behaviour is the pupil's perceived self-efficacy. This triggers two important learning behaviours – motivation and self-discipline. The promotion of these two elements of learning behaviour needs to be considered in relation to primary and secondary phases, the overall aim being to move students from externally driven strategies towards the self-motivation and self-regulation needed for lifelong learning and achievement.
- The promotion of 'self-efficacy' as a construct that encompasses self-esteem and self-regard is an important consideration for any policy and planning that seeks to promote achievement and social participation; self-efficacy involves a self-evaluative component which requires that teachers are trained to understand the cognitive process involved in self-evaluation as well as the influencing social and contextual factors. 'Pupil participation', as defined by the use of terms such as 'engagement', 'collaboration', would seem to be central to the development of effective learning behaviour in school contexts.
- Many child development studies examine adult-child relationships pertinent to the development of effective and affective learning behaviour. Additionally, specialists outside the context of the classroom involving adult-child interaction often assess pupils with 'behavioural problems'. 'Additional or otherwise extra' provision, via individual education plans (IEPs), is traditionally delivered via LSATA individual support. Given the findings from the review of the emphasis on 'social relationships' and 'social theories', it seems reasonable to conclude that, within school contexts, social relationships have a significant influence on learning behaviour. It seems logical that identification and assessment of behavioural difficulties should be assessed in schools contexts (such that influence of peer and teacher relationships can be identified) and that subject and class teachers should be central to these procedures. It is also necessary to balance 'individualised' strategies, often designed to address curricular related difficulties, with opportunities for developing learning behaviours within small-group and whole-class contexts. This social aspect of learning behaviour is central to the 'pupil participation' element of school provision. It is intrinsic to learning behaviour, not just for pupils with learning or behavioural difficulties, but also as a crucial element of policy planning and provision for learning within group settings.

5.3.2 Implications for practice

Listed below are some implications for practice derived from the findings of the review. These findings are tentative due to the relatively small number of studies included in the in-depth review and their limitation in providing findings that can be considered generalisable.

There is a need to construct

learning environments in which school is thought of as a place where learning, understanding, improvement, and personal and social developments are valued and in which social comparison of students' ability is de-emphasised (Kaplan et al., 2002, p 206).

Medium to high weight evidence suggests that practices in relation to promoting good behaviour (QTS S1.3) and managing behaviour (S3.3.9) could be improved by the following:

- Schools and their teachers placing an emphasis on developing behaviour for learning for all pupils. This endeavour is intrinsic to teaching and learning, and its development should be a shared aim for all teachers and school policy-makers. Strategies for behaviour management could be evaluated against the extent to which they result in improved learning behaviour.
- Effective learning behaviour being developed through all subject teaching: there is a need for schools and teachers to be proactive in developing learning behaviour rather than simply being reactive to behavioural problems. Early years' settings and initiatives have an important role to play in the development of effective learning behaviour in group contexts.
- Behaviour for learning being fostered through teaching and assessment that seeks to develop a shared understanding of learning behaviour between pupil and teacher. Classroom and school ethos could emphasise the importance of establishing and managing good interpersonal relationships. Without this, individual pupils and their teachers may be on parallel agendas. The individual seeks to 'make sense' of the learning situation. Pupils' perceptions of themselves as learners, their ability to identify and overcome their own task-related barriers to learning tasks are important determinants of their learning behaviour. Teachers, on the other hand, may rely on more externally driven motivation and discipline as a mechanism for increasing motivation, attendance and achievement.
- Teaching that promotes personal achievement and mastery learning rather than simply fosters an orientation on performance-learning within competitive classroom cultures
- Teachers being observant about the effect social grouping has on learning behaviour rather than just on attainment. There is evidence from one of the studies in the in-depth review (Ben-Ari and Kedem-Friedrich, 2000) that heterogeneous groupings and facilitative teaching approaches resulted in enhanced task engagement, particularly for pupils of lower ability.
- Teachers working in partnership with pupils in goal-setting so that a shared understanding can be established in relation to anticipating and addressing barriers to learning
- Teachers being encouraged to apply theory and conceptual frameworks to the task of selecting and evaluating the use of strategies for behaviour management
- Teachers being encouraged to develop assessment to include the identification of social, emotional and behavioural indicators of learning in order to reflect the

findings that learning behaviour in school contexts arises from how a pupil feels, thinks and interacts

- Teachers being encouraged to develop increased integration of curriculum subject areas with PSHE and Citizenship through curriculum planning. This is in recognition of the contribution of personal, social, cultural and family factors on learning and achievement.
- In some school settings, redressing the balance between behavioural approaches to behaviour management to include understanding, use and evaluation of cognitive and affective strategies
- Teachers increasing their understanding of the significance of a pupil's past learning experiences on present learning. This may prescribe the need to place emphasis on personal goal-setting, the valuing of personal achievement, collaborative learning, self-regulatory strategies, and interpersonal skills, particularly within early years teaching. The aim of this is to develop self-efficacy and independence which may help to address the observed reduction in motivation with age and phase.
- The teaching of strategies for goal-setting and achievement
- The adoption of assessment practices that value personal achievement
- Discouraging competitive classroom contexts and encouraging positive interpersonal relationships
- Recognising the importance of promoting 'access, engagement and participation' (that is, not just curriculum access), as essential components of inclusion and effective learning behaviour. These should be fostered through attention to the affective, social and cognitive factors that influence learning behaviour in school contexts.
- The fostering of a culture of research and evaluation in schools such that strategies for improved behaviour can be developed, evaluated and disseminated. Additionally, schools need to build capacity for developing improved behaviour for learning, both within their school and between cluster schools such that pupils receive a consistent approach as they transfer from primary to secondary contexts.

5.3.3 Implications for research

The following are issues and questions that could usefully be addressed by research so that decisions on policy and practice for behaviour management within ITE can be evidence-based.

- Compare findings from this systematic review with other systematic reviews covering related areas (e.g. NFER and TTA-funded reviews in EBD) and other forms of engagement with the literature; that is, narrative reviews and non-empirical forms of enquiry, such as theoretical development and conceptual development.

- It would be useful to build upon this review by addressing the question: *How do theories explain teaching behaviour in school contexts?*
- The key question in relation to improved teacher training linked to this review is: *Does an understanding and knowledge of theoretical underpinnings of learning behaviour lead to improvements in classroom practice?*
- Additionally, what kind of classroom experiences and tasks would enable trainees to improve their practices in relation to promoting effective learning behaviour? How should training be phased?
- How can pupil assessment realistically be enhanced to include affective, cognitive and social indicators relevant to the development of effective learning behaviour?
- What are the components of self-efficacy and how can resilience be increased in school contexts?
- What are the early years precursors of effective learning behaviour?
- Research into gender difference in learning behaviours in school contexts may help to identify precursors of behavioural difficulties. Referrals for specialist EBD provision is more common for boys and such research may help to redress this balance via early identification and proactive provision.
- What are the implications of social groupings for learning behaviours? This is an important question in relation to strategies used for grouping in school contexts (i.e. heterogeneous or homogenous, etc.).
- What kind of pedagogies facilitate the development of effective learning behaviour?
- How can we better understand disruptive/problem behaviours in relation to effective learning behaviours?

This review has located behaviour management within the arena of mainstream practices in promoting effective learning behaviour. The review team acknowledges that findings relating to groups of learners in mainstream settings cannot necessarily be applied to individual pupils, particularly those who experience significant barriers to learning and participation. Similarly, it should be noted that findings from the review are not necessarily transferable to all contexts because of cultural differences and the fact that only one study in the in-depth review (McDermott *et al.*, 2001) analysed data from a sample that was representative of the wider population. However, the findings and implications bring to light some interesting issues that could usefully be further explored.

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APPENDIX 1.1: Advisory Group Membership

The Advisory Group is as follows:

Phil Garner	Professor – Primary ITE External Assessor Nottingham Trent University
Sonia Blandford	Dean of Education – ITE and CPD
Tony Booth	Professor – International Inclusion
Carl Parsons	Professor – Exclusion
James Arthur	Professor – Citizenship
Mike Blamires	Principal Lecturer – Enabling Learning
John Moss	Head of Post Graduate ITE
Simon Ellis	Senior Lecturer in Enabling Learning and Kent local education authority advisor for EBD

APPENDIX 2.1: Inclusion and exclusion criteria

Inclusion criteria

- Be in the English language
- Have been conducted/published between 1988 and 2002
- Be empirical or reviewing empirical research
- Refer to pupils between 3 and 16 years of age
- Be about mainstream pre-school or school contexts
- Be driven by or explained by theory
- Describe one or more of the following learning behaviours: responsiveness, responsibility, participation, engagement, communication, independent activity, self-esteem, self-regard, collaboration, motivation, disruptiveness, disaffection, other learning problems

Exclusion criteria

- Focus on teachers' behaviour or attitudes to the exclusion of pupils
- Be descriptions or evaluations of strategies for managing disruptive behaviour²².

Table 2.1.i analyses QTS Standards documentation (TTA, 2002) in order to identify review-specific keywords to describe 'learning behaviour' in school contexts.

Professional values and practice (page 5) of QTS Standards documentation

Table 2.1.i: Analysis of QTS Standards documentation to identify review-specific keywords for learning behaviour in school contexts

Page	Standards	Title	Keywords / phrases
5	S1.1	High expectations, respect and commitment	Engage, issues
6	S1.2	Consideration for pupils	Value them, consistent, communication Avoid causing embarrassment to pupils or making them afraid to make mistakes
7	S1.3	Promoting positive values	Establish positive relationships with their pupils, through positive communication, motivate, encourage engagement in learning
8	S1.4	Communication with parents and carers	Communicate appropriately with parents and carers
14	S1.7	Commitment to professional development	Critically engage with evidence from research and inspection copies
16	S1.8	Working within the law	Seeking advice appropriately
20	S2.1a	Foundation stage	Establish relationships with pupils and parents / carers

²² The team had been advised that all such studies were to be excluded on the grounds that another review team (Institute of Education) were reviewing studies with this focus.

Page	Standards	Title	Keywords / phrases
			Make appropriate interventions
26	S2.2	National Curriculum aims and guidelines	Setting suitable learning challenges, diverse pupil needs, overcoming potential barriers to learning and assessment for groups and individuals
29	S2.4	How development affects learning	Physical, intellectual, linguistic, social, cultural and emotional development, feelings and temperament
32	S2.6	Special educational needs (SEN)	Overcome barriers to learning, full access, full member of the class.
34	S2.7	Promoting good behaviour	Purposeful learning environment. Interest and motivate. Effective strategies. Relationships with pupils. Follow policies. Curriculum content. Differentiation. Classroom management and organisation. Classroom discipline and managing pupils' behaviour.
40	S3.1.4	Working in teams	Contribute to positive management of pupils' behaviour (other adults in classroom).
43	S3.2.2	Assessment to support learning	Provide constructive feedback to pupils – involving pupils in reflecting on, evaluating and improving own performance.
46	S3.2.4	Meeting pupils' needs	Identify simple explanatory patterns behind behaviour or learning difficulties – in certain contexts, poor concentration.
51	S3.3.1	High expectations	Establish positive professional relationships with pupils. Maintain high expectations. Create safe and purposeful atmosphere. Respect each other. Co-operate well. Value equally.
62	S3.3.6	Taking account of diversity	Adopt range of interests, experiences and achievements. Motivate to engage in learning.
66	S3.3.9	Managing behaviour	Set high expectations for pupils' behaviour and establish a clear framework for classroom discipline to anticipate and manage pupils' behaviour constructively, and to promote self-control and independence. Positive and assertive approach, positive feedback.
71	S3.3.14	Equal opportunities	Deal with behaviour in context of local and national policies and procedures. Pupils should have equal opportunities to learn, make progress and achieve in a supportive environment. Equal respect and treatment.

Table 2.1.ii describes how QTS (TTA, 2002) Standards documentation described in Table 2.1.i was further analysed to identify appropriate keywords to describe 'learning behaviour' in school contexts. Descriptors in bold type in sections 2.2.1 and 2.2.2 were used as review specific keywords.

Table 2.1.ii: Further analysis of QTS Standards to identify keywords for learning behaviour in school contexts

Domain/theoretical category	Descriptors used in ITT Standards (TTA, 2002)	Extrapolation of what TTA Standards expect from pupils	Extrapolation of what TTA Standards requires from ITE trainers
Social relationships and learning	Responsibility Value diversity Engagement Positive relationships Positive communication Inclusive Promote learning independence	Relationships that promote participation, engagement and responsibility	Knowledge and understanding concerning the establishment of relationships that promote learning and participation
Affective	Respect Equality Considerate Respect Motivate Value Self-perception/self-esteem Recognition of feelings	Pupils who feel they are respected, their achievements valued and recognised and they have equal opportunities to learn and progress	Knowledge and understanding of how to promote affective development for learners in group settings
Cognitive	Motivation High expectations Understanding of intellectual processes Overcoming barriers to learning and assessment Awareness of learning differences	Pupils whose learning difficulties and differences are understood, and who are enabled to learn and evidence their achievement	Knowledge and understanding of how learning differences and difficulties affect learning behaviour
Behavioural	Deal with and challenge bullying Engage Consistency Effective strategy use Establish purposeful learning environment	Pupils who experience fair and consistent discipline in a safe environment	Teachers who understand and are able to implement behavioural approaches to improve learning and participation
Developmental/ Medical	Awareness of gender difference Use and understanding of child development: physical, emotional and cognitive	Pupils whose learning behaviour is considered in relation to their overall physical and cognitive development	Knowledge and understanding of how differences/difficulties/delays in development contribute to an understanding of learning behaviour

APPENDIX 2.2: Search strategy

(Examples of search procedures used for BEI, ERIC, etc.)

Example: *Theory* (exp & lim) + [Behaviour (exp & lim) OR Relationships (exp & lim)] + School (exp & lim).

- Search terms used:

Cognitive Theories was mapped to Epistemology

Social Theories was mapped to Social Theories

Behaviour²³ Theories was mapped to Behaviour Theories

Affective Behaviour was mapped to Affective Behaviour

Developmental Theories was mapped to Developmental Stages

Learning Theories was mapped to Learning Theories

Behaviour was mapped to Behaviour

Relationships was mapped to Peer Relationships

- Mapped search terms were expanded to include related terms as follows:

Epistemology OR Cognitive ability or cognitive development or cognitive processes or cognitive psychology or developmental continuity or developmental stages or knowledge level or learning

Social theories OR role theory or social change or social cognition or social environment or social influences or social networks or social structure or social systems or sociocultural patterns or socio-economic influences

Behaviour theories OR counselling theories or personality theories

Affective behaviour OR attachment behaviour or attitudes or desensitisation or emotional development or emotional response or interests or prosocial behaviour or psychological patterns

Developmental Stages OR behaviour development or child development or cognitive development or concept formation or development or developmental continuity or developmental psychology or emotional development or individual development or physical development or Piagetian theory

Learning Theories

Behaviour OR behaviour problems or pupil behaviour or student behaviour

Peer relationships OR pupil school relationships or student school relationships or teacher pupil relationships or teacher student relationships

- Search terms were combined as follows:

²³ US spelling (behavior) was used for ERIC searches.

1) Epistemology OR Cognitive ability or cognitive development or cognitive processes or cognitive psychology or developmental continuity or developmental stages or knowledge level or learning

AND

Behaviour OR behaviour problems or pupil behaviour or student behaviour

OR

Peer relationships OR pupil school relationships or student school relationships or teacher pupil relationships or teacher student relationships

AND

School

2) Social theories OR role theory or social change or social cognition or social environment or social influences or social networks or social structure or social systems or sociocultural patterns or socio-economic influences

AND

Behaviour OR behaviour problems or pupil behaviour or student behaviour

OR

Peer relationships OR pupil school relationships or student school relationships or teacher pupil relationships or teacher student relationships

AND

School

3) Behaviour theories OR counselling theories or personality theories

AND

Behaviour OR behaviour problems or pupil behaviour or student behaviour

OR

Peer relationships OR pupil school relationships or student school relationships or teacher pupil relationships or teacher student relationships

4) Affective behaviour OR attachment behaviour or attitudes or desensitisation or emotional development or emotional response or interests or prosocial behaviour or psychological patterns

AND

Behaviour OR behaviour problems or pupil behaviour or student behaviour

OR

Peer relationships OR pupil school relationships or student school relationships or teacher pupil relationships or teacher student relationships

AND

School

5) Developmental Stages OR behaviour development or child development or cognitive development or concept formation or development or developmental continuity or developmental psychology or emotional development or individual development or physical development or Piagetian theory

AND

Behaviour OR behaviour problems or pupil behaviour or student behaviour

OR

Peer relationships OR pupil school relationships or student school relationships or teacher pupil relationships or teacher student relationships

AND

School

6) Learning Theories

AND

Behaviour OR behaviour problems or pupil behaviour or student behaviour

OR

Peer relationships OR pupil school relationships or student school relationships or teacher pupil relationships or teacher student relationships

AND

School

In the first search, the search terms were limited as follows:

- All search terms limited by:

Timeframe – 1988-2002

Language – English

Age level – Young children, or children, or preschool children, or adolescents, or young adults

In the second search, the search terms were limited as follows:

- All search terms limited by:

Timeframe – 1988-2002

Language – English

Educational level – Pre-school education, or nursery school education or infant school education or primary education or primary secondary education or middle school education or secondary education

APPENDIX 2.3: Core and review-specific keywords

EPPI-Centre Keywording Strategy for Classifying Education Research (Version 0.9.6)

1. Identification of report
2. Status
3. Linked reports
4. Language
5. Country of study
6. Focus of study
7. Curriculum area
8. Programme name
9. Population focus
10. Age of learners
11. Sex of learners
12. Educational setting(s)
13. Type(s) of study
14. Application of keywords

Review-specific keywords

11. *Theories* (Choose one or more.)
 - Cognitive
 - Social
 - Behavioural
 - Affective
 - Developmental
 - Learning
12. *Behaviour* (Choose one or more.)
 - Responsibility
 - Responsiveness
 - Engagement
 - Participation
 - Communication
 - Independent activity
 - Collaboration
 - Self-regard
 - Self-esteem
 - Motivation
 - Disruptiveness
 - Disaffection
 - Problems (Please specify.)
13. *Relationships*
(Choose one or more.)
 - Peer
 - Pupil-teacher
 - Pupil-parent
 - Pupil-school
 - Pupil-other
14. *Learning outcomes*
(Choose one or more.)
 - Attainment
 - Achievement

	Inclusion
	Exclusion
15. <i>Special Educational Needs</i>	SEN/AEN (Please specify.)

APPENDIX 3.1: Samples of keywording

EPPI-Centre Keywording Strategy for Classifying Education Research (Version 0.9.6)

Ashley M (2001) Caring for the boys: lessons from attachment theory

A.1	Identification of report	Electronic database: BEI
A.2	Status	Unpublished paper presented at BERA 2001
A.3	Linked reports	Ashley, M (1993) Peer attachment and social deviancy in the primary school. Unpublished MPhil thesis, UWE Bristol. Ashley, M (1995) Children's experience in the playground. <i>Pastoral Care</i> , March 1995: 20-27
A.4	Language (Please specify.)	English
A.5	In which country/countries was the study carried out?	England
A.6	What is/are the topic focus/foci of the study?	Classroom management, equal opportunities, teacher careers (<i>recruitment of male primary school teachers</i>), Other (<i>care of boys' emotional needs</i>)
A.7	Curriculum	The material does not focus on curriculum issues. <i>The focus is on relationships between boys and teachers, and boys and their peers.</i>
A.8	Programme name (Please specify.)	None
A.9	What is/are the population focus/foci of the study?	Learners, teaching staff, parents
A.10	Age of learners (years)	5-10 (7 to 11 years)
A.11	Sex of learners	Male only
A.12	What is/are the educational setting(s) of the study?	Primary school
A.13	Which type of study does this report describe?	Exploration of relationships
A.14	Have keywords been applied in all categories?	No. <i>No programme name</i>

Review-specific keywords

B.1	Theories	Affective, behavioural, social
B.2	Learning behaviour(s)	Disruptiveness, responsiveness
B.3	Relationships	Peer, pupil-teacher, pupil-parent
B.4	Learning outcomes	Achievement
B.5	SEN/AEN	Needs of insecurely attached boys

Nelson JG (1992) Class clowns as a function of the Type T psychobiological personality

A.1	Identification of report	Electronic database: ERIC
A.2	Status	Published
A.3	Linked reports	Not linked
A.4	Language (Please specify.)	English
A.5	In which country/countries was the study carried out?	USA
A.6	What is/are the topic focus/foci of the study?	Classroom management
A.7	Curriculum	The material does not focus on curriculum issues
A.8	Programme name (Please specify.)	None
A.9	What is/are the population focus/foci of the study?	Learners (8 'clowns' and 24 'nonclowns')
A.10	Age of learners (years)	5-10 (7 to 9 years)
A.11	Sex of learners	Male only
A.12	What is/are the educational setting(s) of the study?	Primary school
A.13	Which type of study does this report describe?	Evaluation – researcher-manipulated: <i>Clowns and Nonclowns were tested using the 'sweat bottle method' (Strahan, Todd and Inglis, 1974) in which they had to turn an open bottle of water upside down on their palm and then turn it the right way up again. The bottle was then capped and readings of sweat ions made. The less sweat (lower arousal) would result in more resistance and higher thrill-seeking behaviours.</i>
A.14	Have keywords been applied in all categories?	No. No programme name

Review-specific keywords

B.1	Theories	Behavioural, Developmental
B.2	Learning behaviour(s)	Disruptiveness
B.3	Relationships	Pupil-teacher: <i>Author suggests that, although the findings do not prove that the clown's behaviour is motivated by teacher revenge, teachers could possibly reframe the negative behaviour of the clown into a stimulation-seeking motive. Type T clowns would also do better in an educational setting characterised as inductive, discovery learning, fast pace, variable pacing, discussion format, student centred, heuristic and creative.</i>
B.4	Learning outcomes	Inclusion
B.5	SEN/AEN	Behaviour problems

Boman P, Yates G (2001) Optimism, hostility and adjustment in the first year of high school

A.1	Identification of report	Electronic database: BEI
A.2	Status	Published
A.3	Linked reports	Not linked
A.4	Language (Please specify.)	English
A.5	In which country/countries was the study carried out?	Australia
A.6	What is/are the topic focus/foci of the study?	<i>Relationship between students' levels of optimism and pessimism or hostility to school and their adjustment following transition to high school</i>
A.7	Curriculum	The material does not focus on curriculum issues. However, the study did find correlations between levels of optimism and classroom involvement.
A.8	Programme name (Please specify.)	None
A.9	What is/are the population focus/foci of the study?	Learners
A.10	Age of learners (years)	11-16 (12 to 14 years – 108 Year 8 students)
A.11	Sex of learners	Mixed sex - 55 male, 47 female
A.12	What is/are the educational setting(s) of the study?	Secondary school (One metropolitan high school in Adelaide)
A.13	Which type of study does this report describe?	Exploration of relationships <i>Ethnographic study examining student perceptions of caring relationships and the meanings attributed to interactions with teachers. Caring seen as: control, equality, forgiveness, concern, good teaching. Conclusions: Teachers should provide personalised attention, attentive pedagogy, engage in dialogue about 'care'.</i>
A.14	Have keywords been applied in all categories?	No. No programme name

Review-specific keywords

B.1	Theories	Affective, cognitive, learning: <i>Theory of optimism and pessimism (Scheier and Carver, 1985) and Constructivist Learning Theory</i>
B.2	Learning behaviour(s)	Engagement, participation, disruptiveness, disaffection
B.3	Relationships	Pupil-school
B.4	Learning outcomes	Achievement, inclusion
B.5	SEN/AEN	

APPENDIX 4.1: Details of studies included in the in-depth review

Ben-Ari and Kedem-Friedrich (2000) Restructuring heterogeneous classes for cognitive development: social interactive perspective

Broad aims of the study

The aim of the study was to test an interactive model that depicts the relationship between the amount of on-task interaction between students, teaching role and cognitive growth.

Research design

Thirty-six classes from five elementary schools were enlisted, involving a sample of 1,017 8-11 year-old pupils and their 29 teachers (some of whom taught more than one class). Teachers were trained in 'Complex Instruction' methods the summer before the academic year. Students were tested for cognitive ability using the MAN test at the beginning of the academic year. Teachers evaluated students' academic status at the beginning of the school year and the researchers allocated the students in each class to high or low status groups, above or below the academic mean on the basis of a five-point scale. Complex instruction methods were used in the classes, which meant that students worked in heterogeneous groups of about four pupils, and group work involved three stages, lasting around 20 minutes in total, with the middle stage – the work stage – being the longest (10 minutes). Researchers conducted observations of students' interaction and teachers' role over a 10-month period during the course of the regular curriculum for two hours / week in each class. At the end of the year, students were again tested for cognitive ability.

Data-collection and analysis

Defining the sample: Students were tested for cognitive ability at the beginning of the study. Students were evaluated by teachers at the beginning of the study and allocated to hi or low academic status groups.

Data-collection: High or low status was used in analysis in comparatively measuring cognitive growth over the period of ten months, as was whole class cognitive growth. Data informing study on teachers' roles as 'developer' or 'supervisor' were collected and analysed in relation to students' interaction and subsequent cognitive growth. Data were collected on students' verbal interaction, non-verbal interaction, no interaction using curriculum-based assessment - teachers' evaluations of students' academic status on a five-point scale ranging from 1 (high) to 5 (low); psychological test – MAN test of cognitive ability; and observation – trained researchers observing pupils' on-task activities and teachers' role as developer or supervisor. Structured observation instruments were used. For students, these involved three categories (verbal interaction, non verbal interaction, and no interaction) and researchers measured frequencies of behaviours allocated to each category for students. A team of trained observers visited each classroom and recorded the behaviour of pupils twice for a period of a minute, timed at random during the second stage of the lesson (group work stage of complex instruction method – when, in theory, students work in small groups on learning tasks) (p 159). For teachers, these involved a list of eight behaviours, with four relating to developer role and four to supervisor role (p 158). Teachers were observed for five minutes during the preliminary stage of the lesson, 10 during the work stage, and five during the report stage. Behaviours were recorded.

Data analysis: All measures were calculated at the aggregate classroom level since the study investigated a collective organisational process (Cohen *et al.*, 1989, p 140). Methods involved Path analyses, using LISREL VII procedure (Joreskog and Sorbom, 1988).

Both their hypotheses relating to their model were confirmed.

The model with only significant paths (i.e. between supervisor or developer) and non-verbal or verbal interaction and (cognitive change among) high or low status students represents the interactive model (i.e. developer as facilitator of interaction and cognitive growth?) and rejects the rival model (supervisor). Teacher's influence was only indirect via the students' verbal on-task interaction.

The 'developing' role of the teacher was positively related to the social-verbal on-task interaction of the pupils (0.45), while the 'supervisory' role was even negatively related (-0.36). Since only the verbal on-task interaction had a significant positive effect on cognitive change (0.38), it was the use of the developing role that had an indirect positive influence on cognitive growth.

For high status students, although the model received confirmation as to the structure, the cognitive development change was unrelated either to the teachers' role or to the students' activity within the classroom. For low academic status students, the results indicate that the cognitive development change was affected by the teachers' role through the students' activity within the classroom.

Authors' conclusions

It is possible to advance students' cognitive growth in a heterogeneous classroom if the learning situation is restructured in a manner that establishes conditions that foster such growth. The effects of on-task interaction on cognitive growth were found to be a function of both its quality and quantity. Improvement in cognitive ability was a positive function of the amount of on-task interaction. Interaction per se is not necessarily conducive to cognitive growth because non-verbal, on-task interaction led to cognitive improvement. It is possible that non-verbal, on-task interaction had no influence in this study because the instrument used to assess cognitive growth measured cognitive verbal abilities and such influence would be found using instruments that measure non-verbal capacities. Further research should test whether verbal, on-task interaction provides a (more?) suitable context for fostering cognitive abilities than non-verbal interaction, using measures of both verbal and non-verbal abilities. Teaching role does not directly, but indirectly, affect cognitive growth, through its influence on on-task verbal interaction. Supervisor role = decreased verbal interaction; developer role = increased verbal interaction.

Two implications for restructuring heterogeneous classes:

- It is imperative to increase the amount of on-task verbal interaction among students – by engaging students in collaborative work that encourages them to communicate verbally in order to successfully complete the task.
- The teacher must maximise behaviours characteristic to the developer role and minimise behaviours characteristic of the supervisor role in order to facilitate on-task verbal interaction. Teachers' perception of their role in the learning situation needs to change so they understand they are not the central focus of classroom life or the primary source of knowledge. Teachers should delegate the authority and responsibility of the learning process to the interacting group. They must also believe in and internalise the essential contribution of on-task verbal interaction to the learning process. Study was done in the context of the Complex Instruction programme, which takes steps to help teachers delegate authority and enable the developer role. Findings about this programme (p 164) leave open the question about the relative influence of the teaching context vs. teacher training or the teacher's personal characteristics to foster developing behaviours vs. supervision behaviours. The restructured learning situation appeared to be more geared towards the needs of low-status students, who suffer from conventional learning situations because they participate less in the learning process than high-status students. The restructured situation was more meaningful for the low-status students than the high-status ones. The interaction between low- and high-status students adheres to the relationship between the positive effects of peer on-task interactions and the cognitive growth of low-status students. Since restructuring for cognitive growth does not appear to benefit high status students, the restructuring should include elements that can also fulfil their needs for knowledgeable others. Backgrounds of low- and high-status students may vary (low and high levels of intellectual stimulation at home, etc.) and changes in the school environment may exert a more dramatic impact on the behaviour of low-status students.

Kaplan et al. (2002) Classroom goal structure and student disruptive behaviour

Broad aims of the study

Investigates whether the goal structure in the classroom is related to incidences of disruptive behaviour.

Research design

The study was conducted in five ethnically diverse high schools in Michigan, USA. Five hundred and seven 9th grade students (aged about 14 years) completed a survey. Thirty-six teachers of 9th grade maths were given a survey to complete and 35 returned the completed survey. A matching process led to the identification of a sample consisting of 388 students from 60 maths classes taught by 25 maths teachers. Students were surveyed about their personal achievement goals, their perceptions of (maths) classroom goal structures, and their involvement in disruptive behaviour in maths lessons. Teachers were surveyed about their classroom goal structures (i.e. their goal-related approaches to teaching).

Data-collection and analysis

Data were collected on ethnicity and maths GPA in order to define the sample and to measure aspects of the sample. Measures were taken of students' self-reported disruptive behaviour, self-efficacy in maths, personal achievement goals (mastery, performance-approach or performance-avoidance); teachers' perceptions of goal-related approaches (m, p-app, p-av); and students' maths GPA. Analysis sought whether, over and above personal goal orientations, there are relationships between:

- 1 (a) students' perceptions of classroom goal structures - whether similar between classrooms and, if so,
 - (b) whether they were related to teachers' reports of their goal-related approaches and
- 2 (a) students' reports of disruptive behaviour and classroom placement and, if so,
 - (b) whether they could be explained by class goal structure.

Curriculum-based assessment

First and second semester maths grades were obtained from school and district records. Grades were transformed into a 13-point scale and averaged to compute GPA in maths.

Self-completion questionnaire

507 students and 36 teachers were asked to complete a questionnaire. Unsure whether this is the questionnaire mentioned below. Details in next section.

Sample

Students completed self-report survey.

Teachers completed self-report survey.

School/college records (e.g. attendance records, etc.)

Ethnicity details, obtained from school records.

A survey was administered by trained research assistants to the full sample of 9th grade students and the full sample of high school teachers. Principal component analyses led to the construction of all scales.

All items in the survey (of 388 students and their 25 teachers) were based on a format of a five-point scale, ranging from 1 = not at all true, to 5 = very true. The survey measured:

- (A) Students' disruptive behaviour (scale adapted from Kaplan and Maehr, 1999)
- (B) Students' self-efficacy in maths (scale is from the Patterns of Adaptive Learning Survey, PALS, Midgley *et al.*, 1997)
- (C) Students' personal achievement goals (3 scales taken from PALS)
- (D) Students' reports of classroom goals structures (3 scales taken from PALS)
- (E) Teachers' reports of goal-related approaches to instruction (2 scales taken from PALS)

Data analysis

1. Principal component analyses were conducted with the full sample of 9th grade students and the full sample of high school teachers for the construction of the scales. Final scales were calculated as the mean of item responses.

2. Hierarchical Linear Modelling (HLM) (Bryk *et al.*, 1998) was used to examine relations among classroom characteristics and student characteristics. To estimate hierarchical relationships, maximum likelihood procedures of HLM 4.04 software were used.

The first set of HLM analyses investigated whether students' perceptions of the classroom goal structures:

(a) were similar within and between classes and, if so,

(b) were related to teachers' reports of their goal-related approaches to instruction, over and above students' personal achievement goal orientations.

The second set of HLM analyses investigated whether students' reports of disruptive behaviour:

(a) were related to their classroom placement and, if so,

(b) could be explained by characteristics of the classroom goal structure over and above students' personal achievement goals.

Statistical measures were HLM, Bivariate correlations among variables, ANOVAs testing for levels in disruptive behaviour among ethnic groups, Pearson-R correlations, Intra-class correlation percentages for aggregated student-level predictors and for student behaviour, Chi-square values were estimated for all models with 59 degrees of freedom

Authors' findings

(See pages 203-205.)

Level of disruptive behaviour varies between classrooms.

Classroom goal structure is important predictor of variance:

mastery = low disruption; performance (approach and avoidance) = more disruption

Ethnicity made no difference.

Boys were more disruptive, especially those with low grades and low self-efficacy.

Authors' conclusions

(See pages 204-205.)

It is important to note that the relations between classroom goal structures and level of student disruptive behaviour were found after controlling for the effects of students' gender, grades, self-efficacy and personal achievement goals (p 205). Levels of student disruption varies between classrooms; classroom culture, or more specifically, goal structure, is an important predictor of this variance. Classroom goal structure variables explained all the variance in level of disruptive behaviour between classrooms in the sample. In contrast to conventional approaches to classroom management that adopt a narrow 'pathological' (Beyer, 1998) perspective on students' disruptive behaviour, the study offers a perspective that points to the relation between the meaning of learning and of success that is emphasised, and the level of disruptive behaviour in class. Teachers should consider and modify the messages that their practices send to students with regard to what is important in school. Schools that emphasise mastery orientation in classroom goals will have less disruption. Teachers need to rethink perceptions of what constitutes disruption. Disruptive behaviour may be due to high emphasis on the value of demonstrating ability relative to others (which leads to performance orientation).

McDermott et al. (2001) The organization of student performance in American schools: discipline, motivation, verbal learning and nonverbal learning

Broad aims of the study

This study aimed to identify reliable student performance factors (cognitive, academic, learning behaviours and school social-emotional adjustment) generalisable to a national population.

Research design

A sample of students aged 6 to 17 years, being nationally representative of variables in the US population (from census data), was recruited. Researcher-administered scales and teacher-observation scales were used to measure students' cognitive, affective and behavioural performance factors relating to learning and academic achievement.

Data-collection and analysis

Data-collection methods were curriculum-based assessments through English, reading, spelling and maths grades. Observations were made by teachers to report on students' classroom learning behaviours over the previous two months. Researchers administered psychological tests – Differential Ability Scales, Learning Behaviour Scales, Adjustment Scales for Children and Adolescents, Basic Achievement Skills Individual Screener. Scores were obtained from Nationally Standardized Group Administered Tests to get composite reading, spelling and maths performance. School / college attendance records were used.

Analysis involved Bartlett's chi-square criteria; common factor analyses with squared multiple correlations; canonical correlations; redundancy analyses; oblique, multiple-group, principal component analysis; specific variance; multiple regression analyses; coefficients of congruence; Nunally's formula for reliability of linear combinations; multivariate analyses of variance (MANOVA); and post-hoc analyses.

Authors' findings

Several general trends were evident:

1. Boys and girls enter school with essentially equivalent levels of behavioural discipline, motivation and learning.
2. Within a few years, a dramatic gap appears, favouring girls. This gap begins to close at age 10 or 11, but at age 12, both sexes show a precipitous drop in performance, after which girls tend to regain superior performance.
3. Motivation diminishes with age for both sexes, although girls maintain relative superiority.
4. Non-verbal learning trend is different. Male and female performance levels are indistinct until adolescence, after which boys generally tend to excel more. Characteristic drop in performance levels at age 12 for boys and age 11 for girls.
5. On testing generalisability of sex differences within ethnic groups, for the most part, general trends were sustained except that,
6. Hispanic and African American boys showed no superiority over their female counterparts in non-verbal learning.
7. When assessed across levels of parent education, African-American boys of parents with post-secondary education were superior to comparable female children in non-verbal learning.
8. Higher parental education did not mitigate the trend for Hispanic male students.

Authors' conclusions

1. Verbal and non-verbal learning are highly predictive of achievement and non-verbal learning is predictive of all types of maths achievement.
2. More general prediction of grades requires substantial knowledge of students' motivation levels and disciplined behaviour, in addition to verbal and non-verbal learning.
3. Verbal and non-verbal learning do not predict behavioural outcomes, which is accomplished by knowledge of motivation and disciplined behaviour.
4. There is a unique relationship between behavioural indiscipline in class and delinquency.
5. Early cognitive and attention problems are predictive of later achievement difficulties but not of problem behaviour, and early disruptive behaviour was predictive of delinquency but not achievement.
6. All performance factors accounted for variation in subsequent grades. Teachers' judgements can be relatively accurate approximations of standardised assessments. Teachers' perceptions as reflected in assigned grades may take into account multiple and distinct facets of students' performance.
7. Motivation serves to predict both grades and energetic (disciplined) classroom activity levels.
8. Self-regulation theories suggest that disciplined behaviour needs to be learned and internalised.
9. Behavioural genetics suggests that girls' general inferiority in non-verbal learning may be due to in utero distinctions in the development of cognitive functions which leads to consequent abilities.
10. Social theories would suggest that girls' inferiority was due to stereotyping.
11. On motivation and social learning theory, the study argues against the popular view that girls' poorer non-verbal learning is, irrespective of abilities, a consequence of lowered motivation compared with boys. This study found that girls' competence motivation for learning does diminish with age, but remains superior to boys; also, boys' motivation decreases with age (p 73).
12. On biological theories, the study findings highlight two distinct kinds of relationships between performance factors and achievement:
 - a more general one, involving non-verbal learning and other performance factors and all types of academic achievement (as before)
 - links between non-verbal learning and (exclusively) maths achievement, requiring no differential motivation or disparate verbal ability or behavioural discipline, but suggesting the existence of a real biological advantage for boys.

Biological factors may also be evident in the precipitous declines in functioning (male and female) across all performance factors at about 12 years. These declines were unassociated with grade level and so could not be explained by transition (between grade levels or between schools).

Norwich and Rovoli (1993): Affective factors and learning behaviour in secondary school mathematics and English lessons for average and low attainers

Broad aims of the study

Previous studies had shown poor results in correlations between affective factors and learning behaviours, theorists continue to stress the importance of positive attitudes to learning in promoting educational attainment. This study aimed (a) to investigate the predictive relationship between (i) overall subject affective factors (attitude and subjective norm), (ii) specific lesson factors (behaviour intention, perceived preventive factors and self efficacy), and (iii) learning behaviour during lessons, and (b) to study the consistency of these factors across English and maths lessons, and whether there were differences between average and low attainers in these affective factors.

Research design

Teachers were asked to identify low and average attainers in maths from three year groups in one mixed-sex English school, with all students aged 11-14 years.

Using pupils' self-reports, teachers' evaluations and observations by researchers of behaviour in English and maths classes, the study sought to measure learning behaviours, prior intentions and underlying beliefs as they are related to learning outcomes for low and average attainers in maths and English; it also sought to measure whether these affective factors differ for average and low attainers.

Data-collection and analysis

Data-collection

Observation: Researchers made time sampling observations in weeks six and seven for 15 minutes during the maths and English lessons. The four participating pupils in each class were observed in rotation for the presence or absence of the behaviour indicators. Observations intervals were for 15 seconds each, with 15 observations per child.

Self-completion questionnaire: Self-completion questionnaires for students were designed using information from responses in interviews (prior to main study) with 10 pupils from years 1 to 3 (secondary?) about learning maths and English. The interviews elicited information about 1) salient beliefs about outcomes of learning math and English 2) significant others with respect to learning these subjects 3) factors seen to impede learning 4) behaviours that impede or promote learning maths and English - learning behaviours.

Twenty-eight sample students were given questionnaires as follows:

5-point scale (agree-disagree) measuring attitude to learning

5-point scale (agree-disagree) measuring subjective norm (including significant others and motivation to comply)

5-point scale (agree-disagree) measuring past learning behaviour

8 factors agreement – disagreement statements measuring perceived preventive factors

4-point scale measuring self-efficacy

5-point scale measuring behaviour intention

5-point scale measuring learning behaviour in lesson (same as past learning behaviour and behaviour intention measurement statements)

Other documentation: Teacher version of student measure of past learning behaviour was used to check against the pupil version.

Data analysis: Correlations between different measures of learning behaviour; zero and partial correlations of English background variables with lesson variables and these with learning behaviour in the two lessons; zero and partial correlations of maths background variables with lesson variables and these with learning behaviour in the two lessons; correlations between affective measures in the two subjects for both assessment times. Partial correlation analysis was used to examine the relationship between variables while partialling out the relationship of the other variables; this was chosen in preference to a regression method on account of the small and changing sample size.

Authors' findings

Past learning behaviour in both subjects and both lessons was the best predictor of: start of lesson variables, behaviour intention, preventive factors and self-efficacy. Pupils reported learning behaviour in lessons was predicted by behaviour intentions in both subjects in both lessons; preventive factors in both English lessons and the first maths lesson (not the second); and self-efficacy in both English lessons and the second maths lesson (but not the first). Partial correlations only showed independent low to moderate correlations for English, with learning behaviour being predicted by behaviour intention in the first lesson and by self-efficacy in the second. With the exception of one low non-significant correlation between attitudes to learning maths and to learning English, all other correlations indicate a medium to high consistency between the English and maths affective measures (p 318). Low attainers showed significantly higher scores than average attainers on preventive factors for the first maths and English lessons only. Subject teachers also saw low attainers as showing less overall past learning behaviour for themselves than average attainers. In both maths lessons, low attainers were observed to engage in significantly fewer learning behaviours. This was not found in English nor did the self-report measures show significant differences.

Authors' conclusions

Neither attitude to subjective learning nor subjective norm were consistently predictive of behaviour intentions, which confirmed the findings of the previous study (Norwich and Duncan, 1990). Other findings are better predictors of behaviour intentions and learning behaviour. Past learning behaviour in both subjects and lessons was found to have a moderate and independent predictive relationship with behaviour intention, preventive factors and self-efficacy. Each of these variables then predicted moderately learning behaviour during the subsequent lessons (p 319). The moderate to strong correlations of preventive factors and self-efficacy with behaviour intention in all four lessons indicates that these three variables can be considered to be theoretically related, which could account for their lack of independent correlations with learning behaviour. Beliefs about what will make it hard to learn during a lesson (preventive factors) and judgements about how sure one is about being able to carry out learning (self-efficacy) are likely to influence one's plans to engage in relevant learning behaviours (behaviour intention) (p 319). Self-efficacy is moderately predicted by past learning behaviour. Pupils were fairly consistent between subjects regarding their affective factors. There was no evidence that these pupils had subject-specific attitudes or subjective norms. However, behaviour intentions and self-efficacy were less related across the subjects. Low attainers did not report lower attitudes, subjective norms, behaviour intentions or self-efficacy than average attainers. The fairly wide variation in the affective variables for the whole sample suggests that some average pupils reported low affective levels and some low attainers reported high levels. This would be consistent with the assumption that attainment in school learning can be attributed to cognitive, teaching and motivation-affective factors and not just motivation-affective ones. External pressures from significant others to learn as perceived by pupils do not relate to their intentions to learn. Pupils' attitudes to learning seem to relate to their intentions to learn only when the intentions are expressed in a general way outside the classroom. Specific intentions, expressed in lessons, seem to derive from perceptions of past patterns of learning behaviour in class (p 320). Perceptions of preventive factors and self-efficacy, and not general attitudes and beliefs, relate to pupils' learning behaviour in lessons. The study does not itself show that changes in self-efficacy to learn will enhance learning and attainment, but the findings are consistent with work on self-efficacy which does support this position (Schunk, 1989).

Oettingen et al. (2000): Effective self-regulation of goal attainment

Broad aims of the study

The study (Experiment 1) aimed to explore the principles of fantasy realisation theory (Oettingen, 1999; Taylor *et al.*, 1998) through assessment of pupil's goal commitment to excel in learning a foreign language. The study also aimed to demonstrate that fantasy realisation theory was applicable to setting achievement goals in educational settings, and that it could be assessed by behavioural indicators as well as cognitive and affective measures (which were studied by Oettingen *et al.*, 2000).

Research design

The researchers enlisted the voluntary participation of students from three German middle schools, all of whom were about to start learning their first foreign language (English). Children were aged 10-12 years. Fifty-five children participated in the study and were first administered the RAVEN test to measure general intelligence. Anonymity was preserved and thereafter the children were also asked to rate their expectations about excelling in English and the incentive value of excelling on two five-point scales: from 'much worse than in other subjects' to 'much better than in other subjects', and from 'not at all important' to 'very important'. Then, the children were randomly allocated to three groups. Each group was assigned a particular test and the three tests were different: the first explored the children's expectations contrasted against impeding reality; the second explored only expectations of success; and the third only negative impeding reality. Two weeks later, the children were asked to fill in a self-report card about their persistent effort using three five-point scales; their teachers were also asked to complete a five-point scale in relation to the persistent effort shown by each participant student. They were also asked to state what grade (from 1 – very good, to 6 – fail) for oral work they would give the students, if they had been writing the report cards on that day. Finally, the researchers assessed the students' report cards (grades 1 to 6) three months after the experiment began. After the analysis, the researchers met and debriefed parents and teachers about the study's aims, its hypothesis and its methods.

Data-collection and analysis

RAVEN tests were conducted in order to control for intelligence in correlations of dependent variables, but were not, it seems, used to define the sample. 1. All participants were asked to rate their expectations in relation to doing well in learning English before the experiment, immediately after the experiment, and two weeks later. 2. Three groups were asked to perform tasks that involved contrasting fantasy and reality, imagining positive fantasy, and imagining negative reality. 3. All students were asked to complete three five-point scales, self-reporting their persistent effort over the previous two weeks (since the tests). 4. Teachers were asked to complete two five-point scales evaluating students' academic (oral) performance and persistent effort two weeks after the tests. 5. Three months after the tests, the students' grades in English on their report cards were assessed.

Curriculum-based assessment: Teachers' evaluations and teachers' grades on report cards

Self-completion questionnaire: Self-report scales

Hypothetical scenario including vignettes: Tests relating to fantasy-reality contrast, positive fantasy and negative reality scenarios

Other documentation: RAVEN tests

Data analysis: Authors state that correlation coefficients linking students' expectations of success and their self-reported effort were transformed by FISHER'S Z TRANSFORMATION. ANOVA was performed to test for differences in mean levels of self-reported effort (high and low expectations), and mean levels of teacher-rated effort and academic performance, etc.

Authors' findings

1. The mean level of individual participants' expectations of success was above the mid-point and expectations did not differ for boys and girls. 2. Mean levels of persistent effort (self and teacher reports) were in the upper half of the scales. 3. Academic performance two weeks after experiment was rather high and correlated positively with persistent effort (student and teacher reports). 4. Academic performance three months later correlated strongly with academic performance at two-week point. 5. Link between students' expectations of success and their self-reported efficacy was stronger in the contrast than the other two groups, and there was no difference between the positive and negative only groups in the link between expectations and self-reported effort. However, comparisons of students with high expectations from all three groups showed that those in the contrast group revealed significant interactions: the contrast group tended to exert more effort than other groups when expectations were high, and less effort when expectations were low. A similar pattern emerged from teacher-rated effort. 6. Two weeks after the experiment, the link between academic performance and expectations was stronger in the contrast group than the other two, which showed no differences in links between expectations and academic performance. Testing high versus low expectations in relation to academic performance also revealed that there was stronger academic performance in the contrast group when expectations were high, but those with low expectations in the contrast group did not show weaker performance than those in the other groups. 7. Three months later, links between expectations and academic performance tended to be stronger in the contrast group than the other two, which showed no differences. On testing mean levels of high/low expectations, there was a significant interaction effect. Students in the contrast group showed stronger academic performance than the other two when expectations were high, but did not show weaker performance when expectations were low. 8. Repeated measuring of expectations (a second time directly after the manipulation and a third time two weeks after the experiment) showed that expectations and incentives had not been affected by the experiment.

Authors' conclusions

Strong goal commitments emerge when individuals mentally contrast their fantasies about a desired future with negative aspects of impeding reality, and when chances of success are perceived as being high. Imagining positive future or impeding reality, regardless of whether expectations are high or low, brings about moderate goal-striving. Children can profit from contrasting their wishful thinking with impeding reality. Mental contrasting is a straightforward self-regulatory procedure. When expectations are high, binding goal commitments can emerge and lead to increased effort and high academic performance. Fantasy realisation theory applies to setting achievement goals in educational settings by children of middle childhood, and it holds when behavioural consequences of commitment are assessed as well as when cognitive and affective measures are assessed. *Recommendations:* In order to help children to translate their 'naive optimism' into binding goals, it is critical to help them contrast fantasies with impeding reality. Only then will they form strong goal commitments that are followed by strong performances. Indulging or dwelling students will not translate optimism into strong goal commitments and strong performances, but indulging in fantasies is not maladaptive for all students: those who have lost their naive optimism should benefit from indulging in fantasies as it leads to moderate commitments even when expectations are low. Teachers should also find ways of strengthening expectations and encourage students with low expectations to fantasise positively about success. However, erroneously low or high expectations will lead to irrationally weak or strong effort after contrasting. Students should stay passive to obstacles. Interventions aimed at raising expectations will only be successful if heightened expectations are supported by contrasting positive future with impeding reality. Teachers can also benefit by contrasting fantasies about good teaching with negative aspects of present reality. Binding goals should result. Where expectations are low, schools should provide professional development programmes. Mental contrasting is a skill that should be taught to students who should practise its use and learn when it is most beneficial: that is, when the implied positive futures are controllable in the sense that they can be mastered, or relinquished (when expectations are low). When a person's future is uncontrollable (e.g. because of a severe learning disorder), indulging in positive fantasies seems more appropriate than contrasting, which leads to moderate levels of engagement.