pupils' experiences and perspectives of the national curriculum and assessment

final report for the research review

Pippa Lord
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Research Review conducted for the Qualifications and Curriculum Authority
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Foreword

This report is the final report for the research review on pupils' experiences and perspectives of the curriculum, carried out by the National Foundation for Educational Research (NFER) on behalf of the Qualifications and Curriculum Authority (QCA). It draws together the work from the full six years of this project, which spans literature from 1989 to date. The first report for this project was produced in February 2000. A series of annual updating reports has been supplied by the NFER to the QCA from 2001–2005 inclusive. Since its inception, the review has been extended to cover the areas of assessment, careers education and work-related learning. In total, 314 publications have been summarised for the review (23 of these are from this latest update to the review).

Thanks are due to our colleagues Pauline Benefield and Hilary Grayson in the NFER library and to Hilary McElderry in the Northern Office for administrative support. We also acknowledge previous members of the project team who have contributed to the reports over the years, including Annie Johnson, John Harland and Melanie Hall. Finally, we are grateful for the support and advice from Claire Larkman, who has overseen the project at QCA.

Pippa Lord and Megan Jones
NFER Northern Office
March 2006

Executive summary

1.1 Background and aims

In 1999, the Qualifications and Curriculum Authority (QCA) commissioned the National Foundation for Educational Research (NFER) to conduct a review of the research literature on pupils' experiences and perspectives of the National Curriculum. The review considered research which:

- took into account the pupils' experience and perspective
- focused on the curriculum (including the whole curriculum, the National Curriculum, individual subjects, assessment, cross-curricular themes and skills, and work-related learning)
- was published from 1989 onwards
- was conducted in England, Wales, Northern Ireland or Scotland.

The aims of the review were to examine and categorise the key themes, findings and methodologies employed in the research. The first report for the review, including a database of the sources analysed, was completed in March 2000 (Lord and Harland, 2000).

Subsequently, the NFER has completed five annual updates to the review and database, each one focusing on the most recently published literature in the field (Lord, 2001, 2002, 2003; Lord and Johnson, 2004, 2005). The updates have developed and expanded the themes by which the research has been categorised, in order to take account of emerging issues in the research.

1.2 This report

This report provides an overview of the full review of the research from 1989 to date. It considers the findings from the previous reports and updates, as well as those from research carried out in the most recent publication period 2004–2005. It presents the findings that continue to have significance – for example, in the light of current policy, and that are raised by learners as much today as they have been throughout the period of the review. In this final report, the learners' perspective remains a paramount criterion, as does the focus on the curriculum.

1.3 The research

In total, 314 publications have been summarised and included in the review. Over half of these sources were published from 1999 onwards – indicating a growing focus on involving the *pupil voice* in research. Overall patterns in the year groups investigated, methods used, sample sizes and duration of projects can be summarised as follows.

- Research has been more common in the secondary than in the primary phase. Year 9 and year 11, and year 6 and year 2 have been the most researched year groups within each phase (i.e. the years prior to transfer to the next key stage). Year 9 has been the most commonly researched year group overall.
- Pupils' perspectives have been obtained more often through qualitative approaches than quantitative. However, studies involving both types of data make up more than one third of the body of research.
- The questionnaire and individual interview have remained by far the two most frequently used instruments for exploring pupils' views throughout the time period of the review. In addition, observation methods and pair interviews have been used particularly in the primary phase; whilst discussion groups have been a popular choice at key stage 4 for researching areas such as personal, social and health education (PSHE).
- Current and recent research shows a trend towards involving pupils through group discussion and consultation. This reflects recent developments to include the pupil voice in both research and practice, such as through their involvement in classroom and school-based action research and evaluation.
- Over a third of the studies (where sample sizes were given) have involved samples of fewer than 100 pupils. Fewer than a third have involved samples of more than 750. Most of the research carried out has involved between two and five schools. A small proportion of the studies has involved 50 or more schools.
- Overall, much of the research included in the review has been 'one-off' with short-term data collection. There have been relatively few long-term studies (e.g. three or more years) or longitudinal studies. Age group comparisons have been more common than the exploration of a cohort's views over time.

1.4 Subject areas in the review

Although not a subject-based review, most of the research included has been set in the context of a subject or curriculum area.

- Overall, science has been the most frequently researched subject area from the pupils' perspective, followed by English, maths, physical education (PE) and PSHE.
- The humanities (geography, history and religious education (RE)) and information technology (IT) have been less frequently researched from the pupil perspective, while the arts and modern foreign languages curricula have seen comparatively little research activity.
- The review has identified recent research into a number of areas reflecting policy developments and initiatives, such as citizenship, the literacy hour, bridging units between key stages 2 and 3, work-related learning and assessment.
- The review also contains a number of studies which have explored all subject areas in relation to pupils' subject preferences. However, studies have rarely considered pupils' *whole curriculum* experiences. Where research does investigate more holistically, this has tended to refer more widely to school and teaching and learning experiences.

1.5 The themes in the review

The research findings were categorised by themes, which were developed, refined and expanded as appropriate throughout the time period of the review. Eighteen themes make up the review.

- The most frequently explored themes in the reviewed research have been pupils' perceptions of the **relevance** of, and their **enjoyment** of, the curriculum. Although not the focus of the review, curriculum studies have also frequently reported findings on pupils' preferences for **teaching and learning** styles, as well as their **subject** and **activity preferences**.
- Other common areas of research include **cross-curricular themes and skills**, **assessment** alongside pupils' views on **achievement and ability**, and **careers education**. **Continuity and progression** has commonly focused on key stage

2–3 transfer, although many of the findings on this theme emanate from researcher inference from year group comparisons, rather than directly from the learners themselves.

- Aspects of the curriculum less frequently researched from the learners' perspective include the **manageability** and **breadth and balance** of the curriculum. The **coherence** of the curriculum has been particularly rarely researched from the learners' perspective.
- Other themes to emerge in the findings included: pupils' **understanding** of curriculum subjects; their perceptions in the context of **curriculum change**; **out-of-school influences** on pupils' curriculum experiences; the **effects and outcomes** of the curriculum on learners and pupils' perceptions of **values education**.

Many of the themes directly relate to concepts and policies underpinning the design of the curriculum, such as its breadth and balance, its relevance, and so on. However, several of the themes incorporated into this review have emerged in the findings alongside these 'design' concepts. For example, pupils' views on achievement and ability, or their experiences of teaching and learning styles within the classroom. Such areas encompass wider research that is not included within the remit of this review (i.e. this review has not considered all research on achievement or on teaching and learning, etc).

1.6 The key findings

The research findings from the 314 sources included in the review are dispersed across a wide range of themes and foci, and derived from various aims, research questions and contexts. However, some areas have provided a sufficient body of research to allow cumulative and corroborated results to be identified. Within and across the themes, the key findings that continue to have significance have been summarised. These include findings that resonate with current and recent developments in curriculum policy, and those that remain foremost for pupils today as they have been throughout the time period of the review.

- Learners see the curriculum as relevant to **passing exams**, **getting grades**, and as a **passport** to their next steps. At all ages, pupils' sense of '**academic**' relevance increases with impending assessment. Despite this, **real-life connections**

are important in creating relevance for pupils and **vocational relevance** *for all* is a value espoused by pupils.

- Across the curriculum, **pupils' enthusiasm** decreases as they get older. Over the **primary phase**, their enjoyment starts to wane. At **key stage 2–3** transition pupils experience some repetition in their learning. **More intellectual rigour** may be needed in the curriculum as key stage 2 progresses in order to engage pupils at a time when they perceive many subjects to be getting easier.
- Enjoyment and motivation across the curriculum continue to **decrease throughout key stages 3 and 4**. Year 8 depicts a dip in motivation. Year 9 indicates some recovery of motivational attitudes, associated with national assessment and making choices. However, key stage 4 reveals some **improvements** in pupils' enjoyment, particularly of optional subjects.
- Pupils' enjoyment of the curriculum is associated with a sense of **ease**, fun, newness, progressive **accomplishment** and **appropriate challenge**. Pupils enjoy subjects and activities where teaching and learning is **active**, **participatory** and has **practical application**.
- Learners appreciate **supportive** and **collaborative** approaches, with preferences for increasing **responsibility** and autonomy as they get older. **Explaining clearly** is amongst the most consistently valued quality in a teacher. In addition, pupils appreciate teachers' wide **subject knowledge**, and welcome sessions with professionals from within the field (e.g. health professionals, visitors from colleges, the workplace and so on).
- Across the themes, **variety** is espoused. Pupils enjoy a variety of teaching and learning approaches and activities. A balance and **range of assessment methods** is desirable (e.g. formal and informal; teacher- self- and peer-led evaluation; formative and summative). Pupils also appreciate a **variety of subjects** to be on offer, including **a balance between academic subjects and those that are more creative, practical or vocational**.
- Across the themes, '**too much writing**' and '**too many facts**' form an underlying current in pupils' views (e.g. on manageability, assessment, breadth and balance, enjoyment). They recommend **slimmer subject content**, although by this they do not necessarily imply less depth.
- The right **level of challenge** is important to pupils' engagement, enjoyment, progression and achievement. Thus, some sense of differentiated and individualised learning might be desirable.

- Pupils also value **accessibility** and equal opportunity across many aspects of the curriculum considered in this review – e.g. vocational learning *for all*, 'basics' *for all* (although not necessarily in the form of key skills), careers guidance *for all*. Beyond this though, pupils also request the opportunity for choice, and again, varying degrees of differentiated and personalised learning.
- Across the curriculum, **implicit messages** permeate pupils' experiences and perceptions. Pupils ascribe importance to subjects according to their timetable allocations or assessment status. Learners internalise messages about achievement, making progress and doing well, such that there is sometimes a mismatch between their perceptions (and *labels*) and their actual achievements and abilities.
- Pupils appreciate **explicit measures or markers** in the curriculum – for example against which they can gauge their progress. However, there is a need for making such messages more overt. Pupils (particularly secondary school pupils) require **more visible messages** about the relevance of the curriculum to daily and future life. They might also benefit from **greater awareness of connections** across the curriculum (i.e. coherence), and recognising **continuity and progression** in their learning.

1.7 Current research

In order to identify any current or planned research in the area of pupils' perspectives on the National Curriculum, requests were sent out annually to relevant UK university education departments, research organisations and commissioning bodies. Rather than a comprehensive survey or audit of work, organisations were invited to respond so as to inform the review and help provide an up-to-date picture of the work underway in this field. Searches of the Current Educational Research in the UK (CERUK) databases were also conducted.

Research currently underway in this field includes pupils' experiences of and attitudes towards science; pupils' careers education and decision making; their views on formative assessment and experiences of computer-based assessment methods.

1.8 Implications for curriculum policy, practice and research

Several areas in the review have raised implications for current policy or practice, or have provoked the question of the need for further research. We highlight some of the issues to consider in the light of curriculum policy and developments, including: Assessment for Learning, enjoyment and achievement, the personalised learning agenda, the 14–19 debate and e-learning.

1.8.1 Assessment for Learning and making progress

> *Assessment for Learning is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there.* (Assessment Reform Group, 2002)

Assessment for learning: time to embed. Across a number of themes, subject areas and age ranges, the findings from the pupils' perspective highlight implications for the development of Assessment for Learning. Research has shown that the initial change from a summative to a formative schema can be '*unsettling*' for pupils, and elements such as peer evaluation can be demanding. In addition, pupils' strategies for recognising their own learning and progress reveal a reliance on external cues (e.g. examinations and reports). Thus, Assessment for Learning might take time to embed within teaching and learning and curriculum developers and teachers might also consider the balance between ongoing assessment and summative markers to enable pupils to gauge their progress.

1.8.2 Enjoyment and achievement

> *… for every primary school to combine excellence in teaching with enjoyment of learning …* (DfES, 2003a)

> *… for all children and young people to enjoy and achieve.* (Every Child Matters, DfES, 2005a)

Real-life application, 'fun' and achievement. A number of recent studies reveal a mismatch between pupils' preferred learning styles and activities and what they report actually experiencing in the classroom. Aspects of the curriculum that

might be developed in order to better accommodate pupils' preferences include: increased relevance to daily life and work; greater attention to practical activity; more opportunity for responsibility, autonomy and personal choice; learning that is 'fun'; attention to both the mode of delivery and the content of subjects and a greater emphasis on learning-oriented rather than performance-oriented learning.

Further research on manageability, breadth and balance. Given the association between enjoyment and manageability in the findings, and the changing balance within the curriculum through aspects such as the literacy hour, further research into these topics in the primary phases might be considered – in particular, their association with pupils' enjoyment and achievement.

1.8.3 Personalised learning

> *A pupil's learning journey involves a combination of entitlement and choice that delivers a breadth of study and personal relevance and for young people at age 14 and onwards there is increasing choice within the education system.* (www.standards.dfes.gov.uk/personalisedlearning/five/curriculum)

Breadth, choice and variety. Pupils consistently request a breadth and range of subjects and courses on offer. This encompasses both the desire for personal choice, and entitlement to '*basics for all*'. At key stage 3, 'variety' within the curriculum seems important (i.e. to include a broad range of skills, practical learning and real-life relevance) whilst at 14–19, 'choice' seems important.

Improving balance for all pupils. The areas that pupils highlight for greater curriculum coverage reflect those which they perceive to be useful for daily life, work and for preparation for future study. A greater emphasis on relevant learning opportunities both to study, life and work *and* to the particular pupils concerned might help address issues of balance, as well as '*personalised learning*' for pupils.

1.8.4 14–19 education and skills

> *… tailored to the talents and aspirations of individual young people, with greater flexibility about what and where to study and when to take qualifications.* (DfES, 2005c, p.3)

Further research on coherence, continuity and progression. Given recent developments in the areas of personalised learning and 14–19 education, more research into the coherence, continuity and progression of the learners' experience might be opportune. Areas for research might include: opportunities for personal choice; the range of courses on offer and what this means for the learning experience as a coherent 'whole' and learners' progression throughout key stage 3 and the 14–19 curriculum and its associated assessment arrangements. In addition, accounts of *whole curriculum* learning and skills might be further explored.

1.8.5 ICT and e-learning

> *… as a learner you should have: … the chance to develop the skills you need for participating fully in a technology-rich society*. (DfES, 2005, p.7)

Harnessing pupils' enjoyment and motivation associated with information and communications technology (ICT). Given the added dimension that ICT brings to pupils' learning (including to their enjoyment and understanding), there is a strong case for harnessing the high levels of pupil enjoyment and motivation with regard to ICT that are evident at a young age. This might particularly be the case with girls, whose confidence in computer usage tends to decline with age. ICT was amongst the less frequently researched subject areas at primary school, and given this important arena there may be a pressing need for further research into pupils' perspectives on ICT in the curriculum.

1.9 Concluding comment

This review has focused on pupils' perspectives and experiences of the curriculum and assessment, as found in the research literature from 1989 to date. Over this time period, there have been developments and changes in the curriculum and associated policy contexts. The particular focus that research takes on the *pupil* – as learner, student, individual, participant, and so on – has also changed and developed. As well as exploring their perspectives, *involving* pupils in research has also come to the fore, through consultation, action research, in-school evaluation, school councils and so on. The *pupil voice* is now making a contribution across education and other children's services (including via *Every Child Matters* – making a positive contribution and engaging in decision making through school councils, for example (DfES, 2005a)).

Any future review might be developed to focus on the *pupil voice* – not only *what* they say, but the *process* by which they are involved, *who* is involved, and the *impact* of that involvement on the children and young people, as well as perhaps on schools and elsewhere. As a number of researchers have recently highlighted, it is not only the curriculum that affects young people's views, but *how* they are involved in their teaching, learning, personal, social and other development – a complex array which needs constant unravelling.

2 The research review

2.1 Background to the review

In 1999, the Qualifications and Curriculum Authority (QCA) commissioned the National Foundation for Educational Research (NFER) to conduct a review of the research literature on pupils' experiences and perspectives of the National Curriculum. The review considered research in this field which had been carried out over the last ten years and which was conducted in England, Northern Ireland, Scotland and Wales.[1] The review examined and categorised the key themes, findings and methodologies employed in the research. The first report for this review, including a database of the sources analysed, was completed in March 2000 (Lord and Harland, 2000).

Subsequently, the NFER has completed five annual updates to the review and database, each one focusing on the most recently published literature in the field (Lord, 2001, 2002, 2003; Lord and Johnson, 2004, 2005). A key element of the updates has been to develop and expand the themes by which the research has been categorised, in order to take account of emerging issues in the research.

In addition, the review work has also reflected some of the key educational policy contexts and concerns to emerge. Expansions to the topics covered by the review include pupils' views in the areas of assessment, careers education, work-related learning and citizenship. These reflect developments related to 14–16 and 14–19 education, for example, embraceing vocational and work-related learning opportunities, as set out in the Green paper on 14–19 curriculum reform (DfES, 2002) and through such initiatives as the Increased Flexibility Programme for 14–16 year olds (Golden *et al.*, 2003). In addition, some research highlights recent initiatives such as the National Literacy Strategy, the Key Stage 3 Strategy, and the Assessment for Learning agenda.

2.2 This report

This report provides a selected overview of the full review of the research from 1989 to date. It considers the findings from the previous reports and updates, as well as those from research carried out in the most recent publication period

2004–2005. It presents the findings that continue to have significance in the light of current policy, and that are raised by learners as much today as they have been throughout the period of the review. In this final report, the learners' perspective remains a paramount criterion, as does the focus on the curriculum (which includes the National Curriculum and associated strategies, individual subjects, cross-curricular skills and experiences, and assessment).

2.3 The identified research

Throughout the project, research has been identified using the search strategies and selection criteria employed in the original specification, with updates as necessary to encompass the new areas (e.g. assessment). The full set of aims and objectives, search strategies and inclusion criteria for the review are set out in Appendices 1 and 2. Likewise, the typologies of substantive themes and methodological approaches have been developed and updated as necessary (see Appendices 4 and 5).

The research identified for the review includes studies that have asked pupils about:

- their experiences and perspectives across the whole curriculum
- a smaller or more focused part of the curriculum
- their experiences of particular activities, teaching or learning which have implications for curriculum policy
- schooling more generally, from which views on the curriculum can be extracted.

In addition to the pupils' own voice, a number of the findings in the review have emanated from researcher inference on those pupil experiences and perspectives gathered or observed through the course of the research. The extent to which findings are researcher inferred or directly from the pupils themselves is indicated in the discussion in section 3.

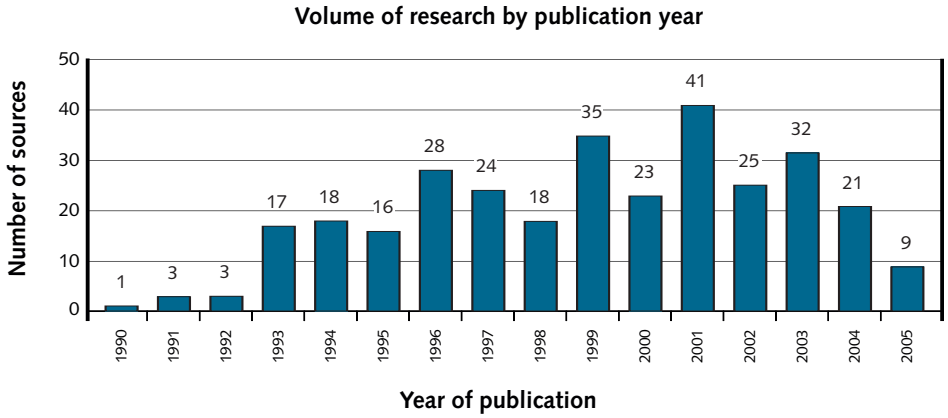
Some of the identified research has involved pupil views alongside those of other stakeholders such as teachers, parents and employers. In the majority of these cases, the views of the different respondents were reported separately, making it possible to extrapolate the pupil views relevant to the curriculum.

2.4 Volume of research

In total, 314 publications have been summarised and included in the review, see Figure 1. Over half of these sources were published from 1999 onwards – indicating a growing focus on involving the *pupil voice* in research. The publication years around the millennium saw an increase in literature in this field, to some extent related to the ten-year anniversary of the introduction of the National Curriculum. Research ten years on was a common theme, on subject choice (Bell, 2001) and standards (Davies and Brember, 2001), for example.

The apparent tail-off in the most recent years of publication is most likely due to a time-lag in sources becoming available on literature databases. Section 4 outlines current research underway on pupils' experiences of the curriculum, and refers to some of the forthcoming publications in the field.

Figure 1 The volume of research in the review



Source: NFER database of sources on pupils' experiences and perspectives of the curriculum

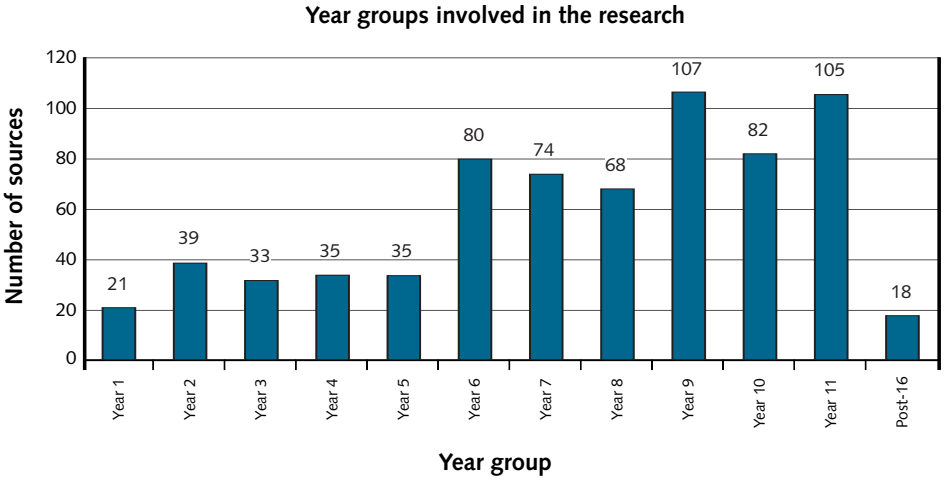
2.5 The phases, key stages and year groups included in the research review

Figure 2 shows the amount of research included in the review according to the year group of the pupils involved.

- The research included in the review has been more common in the secondary than in the primary phase, although a substantial amount has been undertaken in the last year of primary school.

- Across the phases, key stage 3 has been the most commonly researched, whilst key stage 1 has been the least so.
- Year 9 and year 11, and year 6 and year 2 have been the most researched year groups within each phase (i.e. the years prior to transfer to the next key stage). Year 9 has been the most commonly researched year group overall.
- Some research has pertained to one year group only. Other research has involved pupils from several year groups – chiefly within the same key stage or phase, although some cross-key stage research has been undertaken, particularly at the point of key stage 2–3 transition. Other year group combinations for research have included years 2, 4 and 6 and years 7, 9 and 11.

Figure 2 The year groups involved in the review of research



Source: NFER database of sources on pupils' experiences and perspectives of the curriculum
NB Each source could involve a number of different year groups in the research, hence the number of sources displayed here totals more than 314.

2.6 Data collection and methods employed in the research

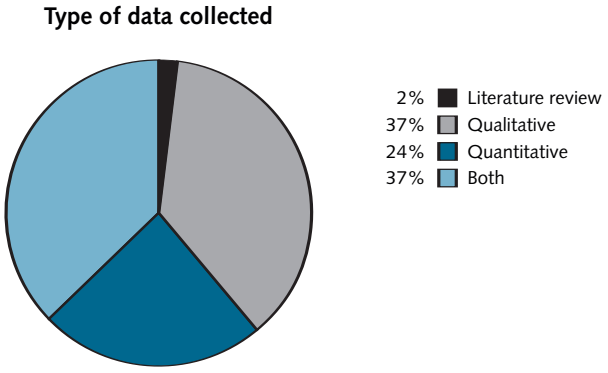
The research included in the review was categorised according to the data collection and methods employed (e.g. type of data, methods and instruments, samples sizes, duration, background variables). A full typology of the methodologies was developed (see Appendix 5).

2.6.1 Type of data

Each piece of research included in the review was categorised according to whether the data collected was qualitative or quantitative (see Figure 3 below). As well as surveys and case studies, a small number of existing literature reviews have also been included in this review.

- Overall, pupils' perspectives have been obtained more often through qualitative approaches than quantitative. However, studies involving both types of data also make up more than one third of the body of research.
- In the primary phase, qualitative approaches have been notably more common than quantitative methods. In the secondary phase, there has been only a slight difference by volume in the two main approaches.

Figure 3 The type of data collected in the research



Source: NFER database of sources on pupils' experiences and perspectives of the curriculum

2.6.2 Methods and instruments

- The questionnaire and individual interview have remained by far the two most frequently used instruments for exploring pupils' views throughout the time period of the review.
- However, a different approach in the research style can be seen between primary and secondary studies. Interviews have been the most common method in the primary phase whilst questionnaires have been the most common in the secondary phase. The proportion of primary school studies employing observation methods has been higher than in the secondary phase research.

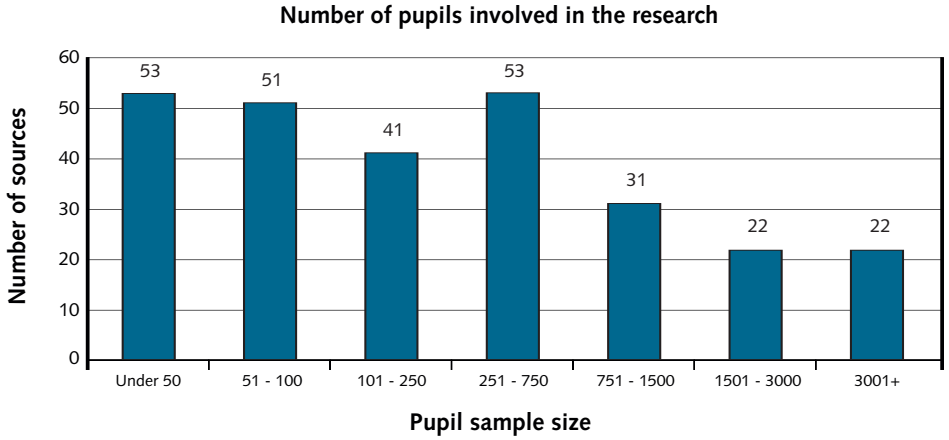
- Interestingly, the use of group or pair interviews has been more common in the primary than in the secondary phase studies; although *discussion* groups have been a popular choice at key stage 4 for researching areas such as PSHE.
- However, the recent research in particular shows a trend towards studies involving pupils through group discussion and consultation, particularly in relation to citizenship and teaching/learning strategies. This would seem to reflect recent developments to include the *pupil voice* in both research and practice, in particular through their involvement in classroom and school-based action research and evaluation (e.g. Fielding *et al*., 1999; Rudduck and Flutter, 2000; Flutter and Rudduck, 2004; Klein, 2003).

Appendix 5 presents a table with further details to illustrate some of the methods employed in the pupil perspective research.

2.6.3 Sample sizes

Each item of research included in the review was categorised according to the number of pupils involved (where known), as shown in Figure 4.

Figure 4 The number of pupils involved in the research



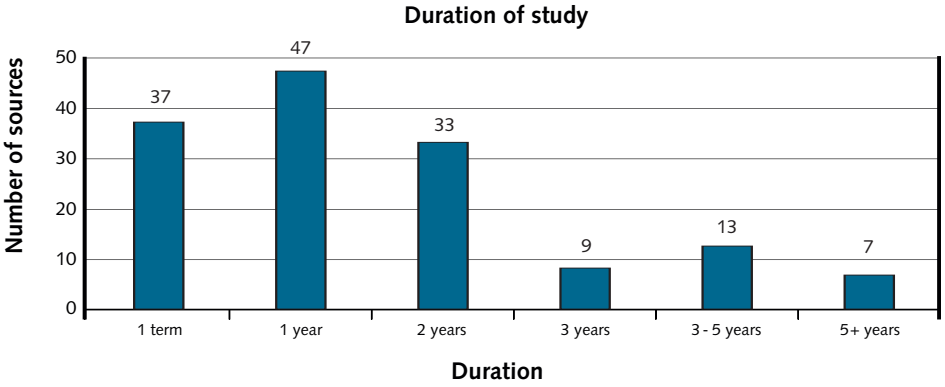
Source: NFER database of sources on pupils' experiences and perspectives of the curriculum
NB In some cases, the number of pupils was not given – hence the number of sources shown here does not sum to 314.

- Over a third of the volume of research (where sample sizes were given) involved samples of fewer than 100 pupils. A slightly smaller proportion involved sample sizes of between 101 and 750 pupils. Less than a third of the volume of research involved samples of more than 750.
- When considered by phase, the secondary school studies have tended to use larger samples – nearly a third had samples of more than 750, compared with fewer than one-fifth of the primary school studies.
- A number of much larger-scale studies have been carried out with more than 3000 pupils in the sample. Some of these have been based chiefly on assessment or monitoring data of the sample; but others have directly involved the pupils' views. For example, the Northern Ireland Curriculum Cohort Study, which included the views of more than 3000 young people (Moor *et al*., 2004); a survey of 4263 pupils in key stage 3 to ascertain gender differences in their attitudes towards foundation subjects (Hendley *et al*., 1995) and similarly a survey of maths, English and science by Miller *et al*. (1999) with over 7000 pupils.
- School numbers were also explored. Most of the studies where school numbers were given have involved between two and five schools. One-fifth of the studies where school numbers were given have been located within one school. A small proportion of the studies have involved 50 or more schools. (This includes the Northern Ireland Cohort Study; whereas in contrast, the large survey sample of 7000 pupils in Miller *et al*. (1999) was focused in nine schools.)

2.6.4 Duration

The duration of the data collection phase of the studies was categorised, where known or apparent in the research – as shown in Figure 5.

Figure 5 The duration of the research studies



Source: NFER database of sources on pupils' experiences and perspectives of the curriculum
NB In some cases, the duration of the studies was not known – hence the number of sources shown here does not sum to 314.

- Overall, much of the research included in the review has been 'one-off' with short-term data collection. There have been relatively few long-term studies (e.g. three or more years).
- On the whole, research involving the longer-term longitudinal tracking of pupils has been rare – both resources and commitment over a time period are raised as barriers to extensive work of this nature. Findings by age have more commonly been presented as part of year group comparisons (see below). However, examples of longitudinal tracking of a cohort of pupils include: McNess *et al*. (2001) who interviewed the same 54 pupils (from nine schools) annually from years 1 to 6 on assessment and Harland *et al*. (2002, 2003) who tracked a cohort of pupils throughout their secondary school careers via survey and case study.
- However, a number of recently identified studies have used repeat measures or pre- and post-data collection approaches with the same group of pupils over a shorter period of time (e.g. one year or less). For example, Ellis (1999) followed as many of the 200 year 6 pupils as possible into year 7 to investigate pupils' views pre- and post-transfer; Fisher and Evans (2000) explored pupils' views pre- and post-foreign language exchange visit and Hillage *et al*. (2001) surveyed young people pre-, during- and post-work experience placements.

2.6.5 Background variables

Studies which have analysed pupils' perceptions by gender and age have been found more frequently than those which have considered other variables such as ethnicity, social class, ability or special educational needs.

Studies investigating the opinions of boys and girls have frequently set out with the exploration of gender differences as a key aim of the research. This has particularly been the case in the fields of PE (see for example, Stidder, 2000a and b; Flintoff and Scraton, 2001; Williams *et al*., 2000) and science (e.g. Hendley *et al*., 1995; Woodward and Woodward, 1998b; Stark and Gray, 1999; Francis *et al*., 2004). Gender differences have also been keenly explored with regard to subject preferences more widely (e.g. Archer and MacRae, 1991; Colley *et al*., 1994a and b; Hendley *et al*., 1996b).

Pupils' age has also been treated as an analytical variable in the focus of the research and its findings. However, age group comparisons have been more common than the longitudinal exploration of a cohort's views over time (e.g. Colley and Comber, (2003b) comparing year 7 and year 11 computer use and attitudes; Davies, (2004) comparing year 7 and year 10 attitudes towards French). In addition, some studies have considered the views of different cohorts over time (e.g. the views of consecutive cohorts of year 2s and year 6s on reading and maths in Davies and Brember (1999), an eight-year cross-sectional study).

2.7 Subject areas in the review

Although not a subject-based review, most of the research included has been set in the context of a subject or curriculum area.

- Overall, science has been the most frequently researched subject area from the pupils' perspective, followed by English, maths, PE and PSHE.
- The humanities (geography, history and RE) and IT have been less frequently researched from the pupil perspective, while the arts and modern foreign languages curricula have seen comparatively little research activity.
- The picture for the top two most commonly researched subject areas appears slightly different according to the phase of education. Whilst science has been the most commonly researched subject in both primary and secondary school studies, this is followed by English in primary and maths in secondary.

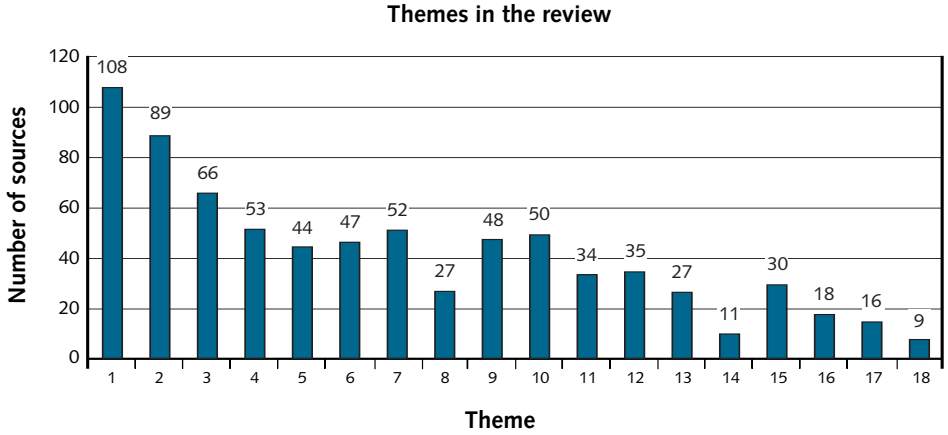
- In light of recent policy initiatives, the review has identified an emerging body of research literature on pupils' views on citizenship and English. In particular, a number of studies consider the learners' viewpoint on the literacy hour (e.g. Johnson, 2002) and associated literacy strategies (e.g. Galton *et al*., 2003, exploring literacy bridging units between key stages 2 and 3).
- The review also contains a number of studies which have explored all subject areas in relation to pupils' subject preferences (including subject rankings according to enjoyment, importance and manageability, e.g. Colley *et al*., 1994a; Hendley *et al*., 1996a and b; Stables and Wikeley, 1997; Colley and Comber, 2003a).
- However, studies have rarely considered pupils' experiences of the curriculum as a whole. Where research does investigate more holistically, this has tended to refer more widely to school and classroom experience (e.g. Glover and Law, 2001a and b, 2004; Plewis, 1996; Doddington *et al*., 1999). There have also been reviews of other areas such as 'values and attitudes' in education (e.g. Halstead and Taylor, 2000) and education, employment and training (e.g. Morris *et al*., 1999).
- Indeed, a number of underlying purposes have been identified in the research, other than to explore subject areas. These have included pupils' experiences of: assessment; learning styles; curriculum delivery; motivation and achievement and school more widely.[2]

2.8 The themes in the review

The research findings were categorised thematically. The themes were developed, refined and expanded as appropriate throughout the project. A full typology of the themes is given in Appendix 4, with a glossary of what is categorised there in Appendix 3.

There are eighteen themes in the review. Figure 6 shows the volume of research making up each theme in the review (according to the number of sources making substantive reference to that arena).

Figure 6 The volume of research making up each theme in the review



Key

1	Relevance	7	Cross-curricular themes	13	Breadth and balance
2	Enjoyment	8	Careers education	14	Coherence
3	Teaching and learning	9	Assessment	15	Curriculum change
4	Activity preferences	10	Achievement and ability	16	Out-of-school influence
5	Subject preferences	11	Manageability	17	Effects and outcomes
6	Understanding subjects	12	Continuity and progression	18	Values education

Source: NFER database of sources for the review of research into pupils' experiences and perspectives of the curriculum and assessment.
NB The themes are presented here according to volume in the review, although with some slight alteration in order to establish logical grouping for the discussion which follows.

- The most frequently explored themes in the reviewed research have been pupils' perceptions of the **relevance** of the curriculum and their **enjoyment** of the curriculum. This has been the case in both the primary and secondary phase research.
- Although **teaching and learning** styles are not the focus of the review, many curriculum studies have touched upon this area, which represents the third largest topic in the review (e.g. teaching and learning processes and pupils' views on the best conditions for learning).
- Strongly related to these themes are the areas of **subject** and **activity preferences** (i.e. likes and dislikes and ratings of the most or least important subjects). Exploring pupils' **understanding of subjects** has also been popular, especially in the primary school studies.
- **Cross-curricular themes and skills** have provided a sizeable body of research findings. These include findings on key skills, PSHE, citizenship and so on, either as discrete provision, or as themes across the curriculum. Note that

careers education (including work-related learning) has been treated as a separate theme here, in order to capture and highlight findings relevant to the 14–19 context.

- Findings on pupils' views of **assessment** could be found in just over one-seventh of the sources of research. These studies have chiefly been exclusively assessment-focused, although some have considered other arenas in conjunction with assessment, such as pupils' views on **achievement and ability**.
- Unsurprisingly, the theme of **continuity and progression** has commonly focused on key stage 2–3 transfer. Many of the findings on this theme, however, emanate from researcher inference from year group comparisons, rather than directly from the learners themselves.
- Aspects of the curriculum less frequently researched from the learners' perspective include the **manageability** and **breadth and balance** of the curriculum. Of particular note is that there have been relatively few sources with findings on these areas in the primary phase. The **coherence** of the curriculum has been particularly rarely researched from the learners' perspective.

Many of the themes noted above encompass findings directly related to the curriculum in terms of concepts and policies underpinning its design e.g. its breadth and balance, its relevance, etc. However, several of the themes incorporated into this review have emerged in the findings alongside these 'design' concepts. For example, pupils' views on achievement and ability, or their experiences of teaching and learning styles within the classroom. Indeed, such areas encompass wider research that is not included within the remit of this review. The focus of this review is on *curriculum*-based research, which in turn incorporates and touches upon a range of other themes.

In addition to those themes outlined above, the following other themes emerged in the findings.

- Pupils' perceptions in the context of **curriculum change**; **out-of-school influences** on pupils' curriculum-related opinions and experiences; the **effects and outcomes** of the learners' curricular experiences for themselves and their perceptions of **values education**.

- The latter two (**effects and outcomes** and **values education**) have been comparatively infrequently explored in terms of curriculum-based research. On the other hand, these areas have been studied within the broader context of the school environment, or young people's wider life experiences of citizenship, health and free time. These broader areas are not covered by this review.

Despite the prevalence of cross-curricular research, this did not correspond with research into pupils' **whole or 'total' curriculum experience** – of which there has been very little comparatively by volume. Indeed, only a relatively small number of studies have contributed to the review in terms of pupils' *whole curriculum experiences*. Two key examples of this type of research are illustrated in the case study boxes below – one in the primary phase, one in the secondary.

Case Box 1 Research into pupils' whole curriculum experience – the primary phase

The Primary Assessment and Curriculum Experience (PACE) project set out to consider the effect of the 1988 Education Reform Act by looking at pupils' and teachers' attitudes towards their changing environment at key stages 1 and 2. It aimed to discover how the **National Curriculum, attainment targets, programmes of study** and **assessment** might change the experience of children at key stages 1 and 2.

It mapped the curriculum experiences of a pupil cohort (54 children from nine primary schools). Pupils' perceptions were gathered on **enjoyment** of curriculum areas, **time allocations** to subjects and activities, **achievement**, purpose of task and what they thought their teacher wanted them to do and learn.

This project referred to pupils' **enjoyment of subjects**, **activities**, **teaching and learning** – but crucially also set these familiar themes (prevalent in the primary phase research in the review) within the context of concepts of curriculum design such as **breadth and balance** and **progression** (less commonly researched from the pupil perspective). Moreover, it gathered pupils' views on these rarely researched themes (even if indirectly), through their estimations of time allocations and assessment of their own and their peers' achievements and 'doing well'.

Key references:

Pollard, A., Broadfoot, P., Croll, P., Osborn, M. and Abbott, D. (1994). *Changing English Primary Schools? The Impact of the Education Reform Act at Key Stage One*. London: Cassell.

Pollard, A. (1996). Playing the system? Pupil perspectives on curriculum, pedagogy and assessment in primary schools.' In: Croll, P. (Ed) *Teachers, Pupils and Primary Schooling: Continuity and Change*. London: Cassell.

Case Box 2 Research into pupils' whole curriculum experience – the secondary phase

The Northern Ireland Curriculum Cohort Study (Harland *et al*., 1999a, 1999b, 2002, 2003) explored pupils' **experiences of the whole curriculum** throughout key stages 3 and 4, across all subject areas and on a range of themes. These included **relevance**, **enjoyment**, **manageability** and **assessment**, as well as some of the less commonly researched areas from the pupil perspective such as **coherence**, **breadth and balance** and **continuity and progression**. This project provided data on the full secondary phase experience of a cohort of pupils representing a ten per cent sample of all pupils in Northern Ireland.

As part of this longitudinal study, the project continued to track the young people's experiences into post-16. Moor *et al*. (2004) gathered the post-16 destinations of the full cohort and interviewed one hundred of these young people at age 17/18 years about their **retrospective views on the whole curriculum** at key stages 3 and 4.

This project remains one of the most wide-ranging and comprehensive studies of pupils' curriculum experiences and perceptions in the review.

Key references:

Harland, J., Kinder, K., Ashworth, M., Montgomery, A., Moor, H. and Wilkin, A. (1999a). *Real Curriculum: at the End of Key Stage 2. Report One from the Northern Ireland Curriculum Cohort Study*. Slough: NFER.

Harland, J., Ashworth, M., Bower, R., Hogarth, S., Montgomery, A. and Moor, H. (1999b). *Real Curriculum: at the start of Key Stage 3. Report Two from the Northern Ireland Curriculum Cohort Study*. Slough: NFER.

Harland, J., Moor, H., Kinder, K. and Ashworth, M. (2002). *Is the Curriculum Working? The Key Stage 3 Phase of the Northern Ireland Curriculum Cohort Study*. Slough: NFER.

Harland, J., Moor, H., Lord, P., Kinder, K., Kaur, S., Johnson, F. and Felgate, R. (2003). *Talking 4: The Pupil Voice on the Key Stage 4 Curriculum*. Belfast: CCEA.

Moor, H., Bedford, N., Johnson, A., Hall, M. and Harland, J. (2004). *Moving Forward: Thinking Back. Young People's Post-16 Paths and Perspectives on Education, Training and Employment. The Post-16 Phase of the Northern Ireland Curriculum Cohort Study: Full Report*. Slough: NFER.

Having outlined the research included in the review, in terms of: volume and year of publication; the phases, key stages and year groups involved; the data collection and research methods employed; subject areas and the themes encompassed by the literature; we are now ready to look at the findings of the review. Section 3 presents the key findings from across the eighteen themes in the review – the main focus of the work undertaken for this review.

Notes

1 The issue of generalising results from a specific region was considered. This can be illustrated by research that has been undertaken in Northern Ireland – where the National Curriculum of England and Wales is not followed. However, many of the themes and issues in pupils' experiences would be, if not transferable, certainly important in contributing to the picture of the curriculum from the pupils' perspective.

2 Research in these and other areas was scoped in an exercise to consider the feasibility of reviewing the wider research from the learners' perspective (Johnson and Lord, 2004, unpublished report).

3 Key findings

3.1 Introduction

This section presents the key findings from the full review of the research literature, under the substantive themes as developed throughout the project. A glossary explaining the types of research categorised under each theme can be found in Appendix 3 and a list of all the categories used in the review is presented in Appendix 4.

Overall, the findings come from a rich and varied data set – 314 research publications with results dispersed across a wide range of themes and foci and derived from various aims, research questions and contexts. Each of the studies included in the review revealed its own particular findings.[1] Some results were evident across a small number of studies only. Other areas have provided a sufficient body of evidence to allow cumulative results to be identified. This overview provides a selected and illustrative review of the findings within each of the eighteen themes.[2] The extent to which findings emanate from a body of research or chiefly from selected texts is indicated in the discussion, as is the level of consensus in those findings. Where appropriate, findings by age, key stage, gender and subject are outlined.

Section 3 also includes a table of selected references across the themes. A full list of the references included in the review can be found towards the end of the report.

The section ends with a summary from across the themes of the findings which continue to have significance – contributing to current policy debate on the *curriculum* and the *pupil* voice, or that are raised as much by pupils today as they were in previous years of the review. Implications for current policy, practice and research are discussed further in section 5.

3.2 Findings by theme

3.2.1 Relevance

The theme of relevance provides the largest category by volume in the review (108 sources). Many studies have specifically explored this area as a key aim of the study. The research has considered pupils' perspectives on: subject status within the curriculum; academic relevance; vocational relevance; the usefulness of subjects to current needs and personal life; relevance to future and adult life and connections with real life.

With such a large body of research, it has been possible to identify cumulative findings from across the research. There has also been a high level of consensus across the reviewed research. Thus, the key, cumulative findings are presented below, with selected supporting references.

Academic relevance

- The academic relevance of the curriculum is prevalent in learners' views. Learners see the curriculum as relevant to **passing exams**, **getting grades** and as a **passport** to their next steps. These perceptions emerge more strongly as pupils get older, but are also apparent at all ages when nearing assessment.
- Examples of 'academic' dominance in pupils' views include: perceptions of the value of GCSEs for their utility in post-16 transition (Denscombe, 2000); perceptions that 'grades' are important to future prospects e.g. year 6 pupils have felt that '*bad SATs results*' are indicative of a future of failure and hardship (Reay and Wiliam, 1999) and perceptions that key stage 2 science is most relevant in the realms of 'school and tests' and indeed more so than to daily life or the world around (Eady, 2002).

Subject status

- The **assessed** parts of the curriculum have been seen as more vocationally relevant than the non-assessed curriculum at key stage 4 (e.g. non-assessed IT, PSE, PE; but excepting careers education) (Harland *et al*., 2003). In this regard, **subjects' examination status** has indicated messages to pupils.
- Likewise, subjects occupying **less curriculum time** have been seen by pupils as signalling **lower status** (Hendley *et al*., 1996b; Harland *et al*., 2003).

Vocational relevance

- **Vocational relevance** in their curriculum is important to pupils – relayed both through skills and content used in actual jobs and careers and through direct experiences of vocational learning (e.g. Haynes and Wragg, 2002; Unwin and Wellington, 2001). Increased emphasis on skills, personal and social development, practical work and gearing some of the curriculum towards teaching a trade, have been mooted by young people to improve the relevance of the school curriculum (Moor *et al*., 2004; Foskett *et al*., 2003).
- In addition, pupils have wished for more opportunity for '*direct*' **experience of post-16 learning** and training during key stage 4 – '*to get closer to the experience of post-16 learning*' (Foskett *et al.*, 2003).

Real-life relevance (e.g. to daily life, current need and the future)

- In order to improve the relevance of the curriculum to **future everyday life**, pupils have nominated similar areas to those highlighted regarding vocational relevance. For example, in a study on citizenship, pupils recommended greater coverage of money, taxes, independent living skills, personal and social education (PSE), law, political and social affairs and 'responsibility' (Lister *et al*., 2001).
- Despite the emphasis on academic achievement and vocational importance in pupils' constructions of relevance, the research indicates that pupils do **value connections made to real life** in the curriculum. Pupils have identified, for example, aspects of personal safety, careers and life skills in PSHE (Jamison, 2001); the opportunity to enhance their political literacy in citizenship (Lister *et al.*, 2001); finding out about contemporaries in other cultures in modern foreign languages (Martin, 2002) and how school science has helped them to understand scientific issues in the world about them or in the news (QCA, 2004b).
- However, the real-life relevance of the curriculum would seem to need enhancing and making **more visible** – pupils do not always see these connections (e.g. Kelly, 2002; Francis *et al*., 2004). For example, perceptions of relevance to **current need** locate around PSHE, but rarely other parts of the curriculum (e.g. Forrest *et al*., 2002; Harland *et al*., 2002 and 2003). Recognition of aspects relevant to **adult life** similarly narrow to literal interpretations (such as the ability to read a map so as not to get lost with regard to geography, e.g. Adey and Biddulph (2001)).

- Pupils more readily perceive *lack of* relevance and link this to feelings of **boredom, difficulty** and **disengagement**. Thus, a curriculum '*brought alive by making it relevant to their everyday lives*' (Francis *et al*., 2004, p.43) is a sentiment espoused in many of the research findings.
- That said, there is evidence that **pupils at primary school** more easily see the relevance of the curriculum and of what they are learning to everyday and to adult life, than pupils at secondary school. Teachers' contextualising the content of the curriculum to the **world about them** and **everyday life** has been shown to be helpful in this regard.

Subjects' relevance and value

- There would seem to be some **under-recognition by learners of the intrinsic value** or merits in subjects (e.g. their '*special-ness*' or distinctiveness). In a study of history and geography, Biddulph and Adey (2003) felt that pupils were not aware of '*the distinctive contribution of each subject to their learning*' (p.301) and, after tracking pupils from year 7 to year 11 in science, Reiss (2001) found little evidence to show that pupils understood why they were learning what they were learning.
- However, examples where pupils have recognised the **value of subjects** include: year 11 recognition of the relevance of skills such as critical understanding in history (Biddulph and Adey, 2003); the usefulness of geography to social and cultural awareness (Biddulph and Adey, 2003) and to '*building world knowledge*' (Norman and Harrison, 2004) and cultural and moral value in studying Shakespeare (Diment, 2003). In consultation on the maths curriculum, QCA found that pupils who enjoyed maths tended to appreciate its distinctive nature and perceive value in the subject itself (QCA, 2004a). There was also some indication that some pupils valued the skills developed in maths e.g. logical thought, problem-solving and thinking skills.

To sum up this blend of findings, two overarching messages regarding **relevance** can be constructed:

- At all ages, pupils' sense of '**academic**' relevance would seem to increase with impending assessment. Pupils' perceive 'tested' subjects as the most important and construct relevance in terms of 'getting a good job' and

'getting good grades'. **Implicit messages** in the curriculum would seem to permeate pupils' experiences and perceptions regarding relevance.

- **Real-life connections** are important in creating relevance for pupils. However, pupils (particularly secondary school pupils) seem to require **more visible messages** about the relevance of the curriculum (both content and context) to daily and future life. **Vocational relevance** for all is a value espoused by pupils.

3.2.2 Enjoyment

Like relevance, the theme of enjoyment provides a substantial body of evidence in the review (89 sources), for example, likes, dislikes, favourite subjects, positive attitudes, etc. Many studies have focused on just one to two subject areas; others have questioned pupils on their enjoyment of their school curriculum overall. 'Enjoyment' has been variously conceptualised and measured, for example, as levels of interest, preferences in relation to other subjects, or enjoyment ratings of individual subjects. Topics such as engagement, motivation, enthusiasm, ability and interest are raised in the findings.

Additionally, findings refer to pupils' engagement with particular activities or their preferences for teaching and learning styles. These findings are followed up more fully in sections 3.2.5 and 3.2.3 respectively.

Enjoyment of the primary curriculum

- At primary level, in general, pupils have been found to enjoy school (Newman, 1997) and show **enthusiasm for all subjects** in the curriculum (Davies and Brember, 1994a).
- However, between the end of key stage 1 and key stage 2 significant shifts in emphasis of enjoyment of the curriculum have been noted (Davies and Brember, 1994b). There is some indication that pupils' **enthusiasm towards the curriculum starts to wane** during the primary phase (e.g. Pell and Jarvis, 2001) and with transfer to year 7 (e.g. Morrison, 2000). From the reviewed research, one of the key issues associated with this is the balance between

pupils' perceptions of ability and the degree of newness or familiarity in their learning – as the following points discuss.

Enjoyment, ability and challenge

- Primary school pupils' perceptions of '**ease**', progressive **accomplishment** and recognition of being **routinely successful** in their learning contribute to their enjoyment of the curriculum. In the PACE study, for example, Pollard (1996) suggested that one of the reasons for writing to become so popular by years 3 and 4, where it had been much less so before, was pupils' growing confidence and competence in expressing ideas in their writing. Similarly, the rise in popularity of maths at this age may be due to the recognition of being increasingly routinely successful.
- However, the relationship between perceptions of 'ease' and perceptions of enjoyment would appear more complex than direct correlation. For example, in many of the science studies included in the review, whilst primary pupils' perceptions of ease increased over the years, their enthusiasm for science declined (e.g. Hawkey and Clay, 1998; Woodward and Woodward, 1998a; Pell and Jarvis, 2001). Indeed, the degree to which pupils are **appropriately challenged** by the curriculum seems important (see also section 3.2.11 on manageability).
- Similarly, the balance between **familiarity and newness** seemed to influence pupils' enjoyment. The numerous science studies reveal that newness engenders the enthusiasm of pupils. In Pell and Jarvis (2001), despite appearing difficult, young pupils' sense of novelty in doing science raised their enthusiasm. On the other hand, Davies and Brember (1994b) found that familiarity with the same equipment/teachers throughout primary school led key stage 2 pupils to become less keen on music, singing and PE than the infants.

Enjoyment of the curriculum in the secondary phase

- One of the most noticeable findings in the review is that pupils' **enjoyment and motivation decreases throughout key stages 3 and 4** (e.g. Keys and Fernandes, 1993; Woolnough, 1994; Harland *et al*., 2002). Case Box 3 illustrates this with some individual subjects.
- With regard to the **curriculum and school** as a whole, Keys and Fernandes (1993) found that compared with year 7 pupils, those in year 9 were less likely to say their school work was interesting and more likely to say that their lessons

were boring. Harland *et al*.'s (2002 and 2003) research found that, taken as a whole, pupils' levels of enjoyment of the curriculum decreased over key stages 3 and 4 (with the exception of some optional subjects – see below). For lower attaining pupils in particular there was a marked decline in enjoyment over key stage 3.

- The body of research findings also described a '**year 8 dip**' in pupils' motivation. Pupils' attitudes in terms of enjoyment and relevance seemed to depict an 'educational limbo' and the year appeared to have 'no focus' (Sharp, 1998; Harland *et al*., 2002; Demetriou *et al*., 2000; Davies, 2004; Galton *et al*., 2003). Some **slight recovery** of motivational attitudes in year 9 was evident, influenced by national assessment and making choices for key stage 4. Indeed, the Northern Ireland Cohort Study revealed marked increase in enjoyment in some optional subjects at key stage 4, such as art, music, history, home economics and technology (Harland *et al*., 2005).

Case Box 3 Decreasing enjoyment: some subject examples in the secondary phase

Science	Blatchford (1996); Reiss (2001); Miller *et al*. (1999), Woolnough (1994).
Maths	Blatchford (1996); Reiss (2001); Miller *et al*. (1999).
French	Williams *et al*. (2002) – perceptions of repetition of subject content and exercises such as writing out vocabulary contributed to pupils' waning enthusiasm for French throughout key stage 3.
Music technology	Comber *et al*. (1993) – pupils' enjoyment of music technology deteriorated with age, with the majority of pupils enjoying the subject at 11–12 years of age, but by 15–16 girls in particular were much less enthusiastic.

Factors associated with enjoyment and non-enjoyment

- At primary school, interest, fun, ease, 'learning' and success were given as **enjoyment factors** (West *et al*., 1997; Pollard *et al*., 1994; Newman, 1997; McCallum *et al*., 2000).
- At secondary school, the **factors** identified as related to **enjoyment** have included: active, participatory learning, as opposed to 'chalk and talk' or 'book-work' approaches (e.g. Biddulph and Adey, 2003, 2004; Norman and Harrison, 2004; Williams *et al*., 2004; Francis *et al*., 2004); practical activity and application (e.g. Parkinson *et al*., 1998; Harland *et al*., 2002); 'fun' presentation of learning (e.g. Hendley *et al*., 1996b) and appropriate levels of challenge (e.g. Williams *et al*., 2003).
- On the other hand, pupils have ascribed boredom, inappropriate levels of difficulty and fear of failure to a **dislike of subjects** (e.g. West *et al*., 1997; Pollard, 1996, in the primary school). Unhappiness and insecurity were also found amongst primary school pupils if the work was too hard (Newman, 1997).

The following points sum up the plethora of findings on pupils' **enjoyment** of the curriculum.

- There was some indication that **pupils' enthusiasm** towards the curriculum starts to wane during the primary phase, as well as after transfer to year 7. Familiarity could breed boredom, whilst newness could engender enthusiasm, even where activities were difficult. More intellectual rigour may be needed in the curriculum as key stage 2 progresses in order to engage pupils at a time when they perceive many subjects to be getting easier.
- Enjoyment and motivation across the curriculum tend to **decrease throughout key stages 3 and 4**. Year 8 depicts a dip in motivation. Year 9 indicates some recovery of motivational attitudes, associated with national assessment and making choices. However, key stage 4 reveals some **improvements** in pupils' enjoyment particularly of optional subjects.
- Pupils' enjoyment of the curriculum is associated with a sense of **ease**, fun, newness, progressive **accomplishment** and **appropriate challenge**. Other factors in pupils' enjoyment relate to teaching and learning styles, including: **active**, participatory learning and that which has **practical** application.

Both subject content and teaching/learning styles contribute to pupils' enjoyment – indeed, some researchers have suggested that the latter is more significant (e.g. Biddulph and Adey, 2003). The following three themes (teaching and learning, activity preferences and subject preferences) cover these issues more closely.

3.2.3 Teaching and learning

This category takes account of the research pertaining to teaching and learning processes and pupils' views on the best conditions for learning. Although not the focus of the review, this category remains the third largest in the typology (66 sources), as it is often touched upon in the curriculum research.

- One of the strongest findings was pupils' support for **active and practical learning approaches**. The most common evidence for this occurred in the body of research into **science** (e.g. Osborne and Collins, 2000; Pell and Jarvis, 2001; Parkinson *et al*., 1998). However, it was also evident across all areas of the curriculum and equally in both the primary and secondary phases (e.g. McCallum *et al*., 2000 in the primary phase and found as one of the key factors in pupils' **enjoyment** throughout the secondary phase in the Northern Ireland Cohort Study, Harland *et al*., 2005).
- Group work has been viewed positively by pupils on a number of different levels. For example, **mixed ability** groups enhanced learning for year 5 pupils (Lyle, 1999); **working with friends** was important in upper key stage 2 for support, praise and encouragement (McCallum *et al*., 2001; Newman, 1997).
- **Collaborative approaches** in particular have been found to enhance pupils' engagement and confidence (e.g. Angier and Povey, 1999; Francis *et al*., 2004; Carnell, 2004; Kinchin *et al*., 2004).
- **Autonomy**, **choice** and **having a** '**say**' in both curriculum content and approach is important to pupils (e.g. Maitles and Gilchrist, 2004). For example, pupils were positive about choice, using their imagination and having control of how their writing developed (in a study of key stage 2 attitudes towards writing, Grainger *et al*., 2003). They felt restricted by imposed content or 'set writing'. In a study on the impacts of a Sport Education programme in secondary school, responsibility, freedom, **self-direction** and peer coaching were attractive elements to pupils (Kinchin *et al*., 2004).

- However, pupils' constructions of **learner responsibility may vary with age**. Younger pupils (e.g. in key stage 1) have depicted their position as learner as a **passive role** (e.g. McCallum *et al*., 2000) and have preferred the teacher to take responsibility (Newman, 1997). On the other hand, older primary school pupils have appreciated being able to determine their own working schedules (Newman, 1997) and have viewed learning as **their responsibility** (McCallum *et al*., 2000). An increasing appreciation of **independent working** is evident throughout the secondary phase, for example, with **coursework** at key stage 4 contributing to the development of study skills and enquiry-based approaches (e.g. Reid and Jones, 2002; Moor *et al*., 2004).
- Pupils of all ages have consistently valued **teachers** who **explain clearly**, who listen, who are fair, who are interesting and who take an interest in the pupils themselves (e.g. Osborne and Collins, 2000; Clark and Trafford, 1995; Rudduck, 1996; Pollard, 1996; Garner 1993). Teachers with **wide subject-based knowledge** are also valued; as well as professionals from the field (e.g. health professionals, visitors from colleges, the workplace and other institutions – see also section 3.2.7).
- **School environment and culture** are also important to creating effective conditions for learning. Key to pupils being positive about their learning includes school councils and mentoring schemes, school-wide policies on 'respect' and 'anti-bullying' (Flutter *et al*., 1999) and the availability of rich and stimulating resources (Glover and Law, 2004).

To sum up pupils' perspectives on **teaching and learning** found in the reviewed research, overall:

- When reviewed as a whole, this category reveals clear messages from pupils, throughout the period of review, for: even greater attention to **practical activity** and an appreciation of **supportive** and **collaborative** approaches. The research also highlights preferences for learner **responsibility and autonomy** that increase with age.
- Different degrees of support, differentiation and individualised learning might be required at different ages. A key might be in the relevance and appropriateness of teaching and learning approaches (Glover and Law, 2004); but also in variety of approach – a popular request from pupils in their learning (e.g. Younger and Warrington, 1999; Harland *et al*., 2005).

However, the recent research also revealed a **mismatch** between pupil preferences and pupil experience. For example, the active participation was preferred by pupils in geography, this was not seen in their choice of '*text books*' and '*video*' as keywords to describe the subject (Norman and Harrison, 2004). Similarly, although pupils enjoyed choice, ownership, freedom and using their imagination in their writing (in Grainger *et al*., 2003), sample work revealed that opportunities for *creating* (choice, freedom, imagination) were less evident than opportunities for *crafting* (to borrow Myhill's (1999) terminology).

3.2.4 Activity preferences

In addition to the teaching and learning approaches described above, this category encompasses pupils' preferences for certain types of activity *within* subject areas (53 sources). Chiefly, the research focuses on activities within the subject areas of science, maths and English. Research in this category is more common in the primary curriculum than secondary. The findings in this category signal some differences with age.

- Pupils' preference for **practical activities within science** is strongly evidenced in the research (e.g. West *et al*. (1997) with key stage 1 pupils; Pell and Jarvis (2001) with 5–7 year olds; Williams *et al*. (2003), Parkinson *et al*. (1998) and Stark and Gray (1999) in secondary school).
- Similarly, pupils emphasise a preference for **practical activity and investigative work in maths** (e.g. Nardi and Steward, 2002a and b; Boaler, 1997), as well as that which involves a balance between individual and group work (see for example, Fisher, 2001 and Nardi and Steward, 2002a and b).
- In English, '**writing preferences**' seem to vary with age and pupils' differing sense of accomplishment. On the whole, younger children seem pre-occupied with issues of neatness and spelling in their writing; whilst upper primary pupils are concerned with words and ideas (Wray, 1993). However, there are also some contraindications in the research findings. Pollard (1996) found that whilst young pupils disliked **writing** (ranked in the last two places in years 1 and 2 out of 12 possible activities), year 3 pupils enjoyed beginning to master the basic skills of handwriting. On the other hand, more recent research has showed the opposite to be the case. Pupils in year 1 and 2 enjoyed writing and were positive about their achievements in joined-up writing, spelling and making and sharing stories; whilst those in years 3 and 4 were negative about

writing (e.g. 'boring', 'not more writing') and portrayed a dip in self-confidence about writing (Grainger *et al*., 2003). That said, other recent work showed that extended writing in the Literacy Hour was enjoyed (although more so by girls than by boys – Fisher, 2001).

- Pupils' views on **writing activities within science**, however, suggest that across all ages pupils disliked writing in science (e.g. Pell and Jarvis, 2001; Woolnough *et al*., 1999). Pupils felt their experiences of writing in science were improved when they could summarise their own thoughts in diagrams and cartoons, rather than through copying and bookwork.
- Generally, young pupils like **reading** – although their reasons and preferences for type of reading material, vary with gender and age. Younger primary pupils (key stage 1) tend to enjoy reading because it is **fun**, while key stage 2 pupils see reading as more **utilitarian** (e.g. 'reading to the teacher' Davies and Brember, 1993). However, key stage 2 pupils also like reading for its social value (e.g. reading to parents or family members, Beresford, 1997). At primary age, preferences for non-fiction/fiction, comics/stories were found to vary with gender (boys/girls respectively) (e.g. Davies and Brember, 1993; Fenwick, 1994). However, in the secondary age range, Myhill's (1999) study found that differences by gender in preferred kinds of reading were not that strong.
- Pupils welcome the **support that ICT brings to their learning** and have ranked it amongst their favourite activities at primary school (West *et al*., 1997). Pupils have valued ICT: for its support in drawing, games and number work in year 2; in writing and using the internet in year 6 (Selwyn and Bullon, 2000) and for the added dimension and versatility that interactive whiteboards bring to numeracy and literacy lessons (Hall and Higgins, 2005). However, amongst pupils' common concern is also their sporadic engagement with ICT in the classroom. The research also indicates that girls' confidence in computer usage becomes an issue as they get older.

Overall, pupils' perspectives reveal preferences for: **practical activity** and '***not too much writing***'. Recent research would suggest that they welcome the **added dimension and versatility that ICT** can bring. And again, reflecting their views on teaching and learning – variety seems to be important.

3.2.5 Subject preferences

The theme of subject preferences and choice (found in 44 sources) includes pupils' rank ordering of preferred subjects (usually in terms of their most favourite and least favourite subjects) and their choice of subjects for key stage 4. Much of the research here has focused on pupils' preferences towards science – presented below in Case Box 4.

- **PE** is one of pupils' favourite subjects in the primary phase (e.g. the PACE project – Pollard *et al*., 1994 and Pollard, 1996; West *et al*., 1997). **Maths and English** have been variously rated as 'liked' and 'disliked' in the primary phase.
- In the secondary phase, overall the findings relay pupils' preference for some of the **practical areas** of the curriculum such as ICT, PE, technology, drama and art (e.g. Haynes and Wragg, 2002; Harland *et al*., 2002, 2003; Colley and Comber, 2003).
- Pupils have also expressed preferences for subject areas **new** at key stage 4, such as media studies, psychology and sociology, but it is noted that such options are not always available to pupils (e.g. Haynes and Wragg, 2002; Harland *et al*., 2003).
- Some subjects are variously rated amongst pupils **most and least enjoyed** subjects. At secondary school these include **maths** and **science** (both included amongst pupils' most and least enjoyable subjects in Stables and Wikeley (1999) and Colley and Comber (2003a) – particularly by year 11, but generally seen as less appealing over the years in Harland *et al*.'s (2003) study).
- Overall, pupils **least enjoy** subjects in which they **perceive lower levels of practical activity or application**, such as modern foreign languages, maths and RE (in the Northern Ireland Cohort Study). By key stage 4, modern languages are amongst the lowest ranking in terms of enjoyment in a number of studies and indeed, were most often mentioned as the subject(s) pupils would most like to drop (according to Stables and Wikeley, 1997, 1999).

Case Box 4 Subject preferences: the case of science

Primary

There is some disagreement as to the popularity of science in this phase of schooling:

- several studies cite pupils' enthusiasm for science, particularly when compared with the views of secondary school pupils (e.g. Reid and Skryabina, 2002; Woodward and Woodward, 1998; Harland *et al*., 1999a)
- other studies note a decline in enthusiasm for science towards the end of primary school (e.g. Pell and Jarvis, 2001; Murphy and Beggs, 2001)
- others indicate that science was not particularly liked amongst primary school pupils (e.g. Pollard (1996) found science ranked within the bottom section of a range of subjects and activities by pupils in years 1, 2, 3 and 4).

Key stage 2–3 transition

- pupils look forward to doing science at secondary school (Wright, 1997; Reid and Skryabina, 2002)
- primary pupils' expectations of continued enthusiasm are not borne out in practice (Braund and Driver, 2005; Reid and Skryabina, 2002).

Secondary

- less enthusiastic attitudes towards science, compared with primary, particularly so by girls (e.g. Wikeley and Stables, 1999)
- lower enjoyment of science (and maths) at year 11 compared with earlier on in secondary school – suggesting that decisions about continuing these subjects after GCSE are being made when pupils' attitudes are unfavourable (e.g. Reiss, 2001; Harland *et al*., 2005)
- chemistry topics were the ones pupils most wanted to do in year 7, but that by year 10 chemistry was the least liked discipline (Reiss, 2001).
- where real-life relevance was conveyed, pupils found their science learning more appealing.

- Although broader than the remit of this review, the findings from the recent research reveal that factors influencing **subject choices** include: **enjoyment** of the curriculum and **career usefulness** (e.g. Haynes and Wragg, 2002; Stables and Wikeley, 1997, 1999); subject interest, **ability** and past academic success (Stott *et al*., 1997) and **parental advice** (Stott *et al*., 1997; Stables and Wikeley, 1999). However, Adey and Biddulph (2001) found that past enjoyment did not always reflect choice; in their study approximately 15 per cent of those choosing geography at key stage 4 had not enjoyed it at key stage 3. Likewise, Stables and Wikeley (1999) found that pupils did not necessarily associate ability with career intentions.
- Reasons for **not choosing** subjects seemed heavily related to perceptions of difficulty and irrelevance (e.g. John and Thomas, 1997; Stables and Wikeley, 1999). More research on this issue can be found in reviews on 'choice' and careers education (e.g. Moon *et al*., 2003; Smith *et al*., 2004; Lines *et al*., 2005) – see also section 3.2.8 for further details.

Overall then, pupils enjoy **subjects** involving **practical activity** and an element of '**newness**'. Why secondary school science should be amongst the least enjoyed subjects for some pupils given its practical element is a question raised by these findings. Perhaps what is important is **practical application** – again, making '**relevance**' more visible to pupils might be considered.

3.2.6 Pupils' understanding of National Curriculum subject areas

The theme of pupils' understanding of National Curriculum subject areas helps explore young people's internalisation of the curriculum and the stances and viewpoints with which they approach subjects. It is allied with the themes of relevance and values and with teaching and learning. A selection of the findings (from the 47 sources) covering common ground is presented here.

- The essence of subjects' meaning and value relayed by pupils is often limited to **literal** '**real-life**' **relevance**, as found in section 3.2.1. Pupils' understanding of maths, for example, was confined to the areas of money, doing taxes and 'hard sums' in Berry and Picker (2000) and pupils' understanding of geography

seemed based on map work and definitions of the world, but less so on geographical enquiry and fieldwork (Catling, 2001; Norman and Harrison, 2004).

- Pupils feel that in 'real life', a subject area encompasses 'adults', 'brainy people', but not themselves (e.g. '***brainy people***' are found in maths and science, Wright, 1997; Newton and Newton, 1997; Duveen *et al*., 1993; Ratcliffe, 1998; Berry and Picker, 2000). Pupils' constructions of mathematicians for example, **did not include their teachers** (Berry and Picker, 2000). Similarly pupils generally **did not entertain the possibility that they themselves** are or could be mathematicians or scientists (unless they were extremely brainy like '*Carol Vorderman*').
- As found in section 3.2.3 on teaching and learning, teachers' **explanations** and making overt **connections** are important to pupils' understanding. For example, in helping pupils to make connections between 'theory' and 'experiment', or to distinguish between 'describe' and 'explain' in science (Duveen *et al*., 1993, particularly in years 7, 8 and 9) and supporting primary school pupils' interpretations of 'time', where phrases such as 'a long time ago' and 'the past' were open to subjective interpretation, whilst more conventional vocabulary such as 'a decade' and 'a century' were assimilated more readily by pupils (Hodkinson, 2003).

Pupils' **understanding** of National Curriculum subject areas explores how they internalise the relevance and meaning of subjects. Findings suggest a need for **connections with real life** and with **other areas of learning** to be made more overt and visible.

3.2.7 Cross-curricular themes

Findings on pupils' experiences of cross-curricular themes and skills cover the areas of PSHE, citizenship and key skills – considered as discrete provision (e.g. PSHE lessons) or as themes within the curriculum, for example, taught through other subject areas. A total of 52 sources contributed to the findings here.

- Pupils view these areas of the curriculum as **important and useful** (Whitty *et al*., 1996; Jamison, 2001; Harland *et al*., 2002, 2003), perhaps even more so

than some of the non-core foundation subjects (MORI, 1998; Halstead and Taylor, 2000).

- However, the place and **status** of areas such as PSHE and citizenship within the curriculum may impact on pupils' perceptions of their relevance and importance (Kerr *et al*., 2004; Chamberlin, 2003; Lister *et al*., 2001).
- There are conflicting findings on the **visibility** of cross-curricular themes and skills – 'invisible' to pupils or not often recognised outside of discrete provision (Morris *et al*., 1999a; Harland *et al*., 2002; Glover and Law, 2001); or visible even where embedded in other areas of the curriculum (e.g. in relation to citizenship – British Telecom, 2003; Chamberlin, 2003; Kerr *et al*., 2004; McKenzie, 2003).
- Pupils' views tend to reflect the relevance and values of **individual subject or topic areas**, rather than the potential for cross-curricular learning. Furthermore, in the Northern Ireland Study, it was found that the cross-curricular themes played a limited role in helping pupils to make connections across their learning (findings at the end of key stage 2 and in the secondary phase – e.g. Harland *et al*., 1999a and b, 2003).

Citizenship[3]

- Pupils see the relevance of **citizenship** education in terms of a **preparation for their life outside school** (Lister *et al*., 2001) and have also valued it making links to their own community and local culture (Andrews, 2001).
- Pupils have commonly associated citizenship with: kindness, caring, friendship and respect for others (notably at key stage 3 – Hahn, 1999) and with social rules and responsibilities and 'community' (notably at key stage 4 – Vaughan and Edwards, 1993) (see also Kerr *et al*., 2004; British Telecom, 2003). However, they have less often linked it with political participation (Kerr *et al*., 2004; Chamberlin, 2003; British Telecom, 2003).
- The **citizenship education topics** that pupils recognise as having covered include: prejudice, poverty, war and moral issues (Hahn, 1999); rights and responsibilities, different cultures and religions and laws (Morris *et al*., 2003; Kerr *et al*., 2004) and to some extent, although with varying results across the findings, the judicial system and government and politics (Morris *et al*., 2003; Kerr *et al*., 2004). Indeed, greater coverage of political and social affairs was requested (Lister *et al*., 2001).

- Much of the research has also looked at citizenship education at a broader level, to include themes such as **school democracy**, **school councils** and areas of extra-curricular and community activity among young people (e.g. sports, fundraising, arts/hobbies) (Kerr *et al*., 2004; Morris *et al*., 2003; Chamberlin, 2003). School councils were seen, to some extent, to be useful mechanisms for pupil involvement. Pupils in these studies felt they were consulted on issues such as school organisation, school rules and 'material' changes (Chamberlin, 2003; Kerr *et al*., 2004; Morris *et al*., 2003). However, from students themselves, there was some sense that the powers of these councils were limited when it came to 'negotiating' the curriculum, in terms of decision making around teaching and learning (Kerr *et al*., 2004) and what actually 'went on in the classroom' (Morris *et al*., 2003).
- **Action research** may be an alternative way to increase pupils' influence on teaching and learning. For example, in a 'research and development' study focusing on writing at primary level, Grainger *et al*. (2003) noted that an outcome of their research into pupil views was the development of a more negotiated curriculum in the project schools, with perceived changes in teachers' practice.

PSHE

- Pupils feel that the PSHE curriculum **needs to be relevant and enjoyable**. This might be enhanced through, for example, peer-led lessons (e.g. Forrest *et al*., 2002; Twine *et al*., 2005); sessions with health professionals and the appropriateness of the topics (e.g. covering HIV later on in secondary school, (Regis, 2000) whereas covering 'puberty' would be less useful at that stage (Harland *et al*., 2002).
- The environment in which sex education lessons is important to pupils, for example, in an **atmosphere of trust** (Buston *et al*., 2002).

Key skills

- Although not especially enthused by covering key skills, pupils have perceived key skills (literacy, numeracy, ICT, communication and social skills) to be **useful to adult and working life** (MORI, 1998; Unwin and Wellington, 2001).
- Young people have noted their application in apprenticeships and work experience (e.g. Unwin and Wellington, 2001). In addition, pupils' awareness of key

skills in the curriculum is enhanced by experiencing their application elsewhere (such as on work placement, e.g. Watson *et al*., 2000, 2002).

- However, pupils would seem to have less awareness or recognition of other skills such as **research and study skills**, or own **strategies for learning** (Shenton and Dixon, 2004; Williams *et al*., 2004; Graham, 2002; Morris *et al*., 1998).
- Indeed, on the whole, pupils' recognition of skills is less forthcoming than that of content when talking about their learning (e.g. Hopwood (2005) in geography; Eady (2002) in science; Harland *et al*. (2002, 2003) across the curriculum).

In sum, arenas such as citizenship, PSHE and key skills would seem to be **important** to pupils – although not generally for their ***cross-curricular*** value, but rather useful as distinct topics themselves. The pupils themselves suggest that relevance might be increased by considering **who delivers the curriculum** (e.g. the PSHE curriculum – professionals in the field).

3.2.8 Careers education and work-related learning

Twenty seven items on careers education and work-related learning have been included in the review. Most of the research focused solely on careers education or work-related learning, but some was part of wider work on pupils' experiences of the curriculum (e.g. Harland *et al*., 2003).

Careers education

- For pupils, there was a lack of coherent awareness of careers education programmes and the purposes of careers guidance (Stoney *et al*., 1998; Howieson and Semple, 2001; Millar and Brotherton, 2001; DfES, 2003b). Careers education lessons could be perceived as less important than other areas of the curriculum (Stoney *et al*., 1998 and to some extent found in Harland *et al*., 2003).
- The **timing** of careers advice was important and pupils wished they had received careers information earlier on in their school careers (Maychell *et al*., 1998; Stoney *et al*., 1998; Howieson and Semple, 2001; Foskett *et al*., 2003).

- Pupils' main **sources of information** on post-16 options were careers teachers and advisors, subject teachers and family. **One-to-one** advice was particularly valued (Maychell *et al*., 1998; Stoney *et al*., 1998; Keys *et al*., 1998) and recommended for greater provision (Foskett *et al*., 2003). Gaining information from **people *in the know*** (for example, people already working in the field, students on the courses or from the institutions they were interested in) was also deemed valuable. There seemed to be call for greater provision of this kind, including direct experience of post-16 destinations, such as through college visits (Keys *et al*., 1998; Foskett *et al*., 2003).
- Despite generally positive perceptions of the careers advice and support received, pupils expressed a need for more help in their careers-related decisions – particularly in **informing them of the full range of options** available at 16 (Maychell *et al*., 1998; Keys *et al*., 1998; Foskett *et al*., 2003; Moor *et al*., 2004).
- Careers education lessons and careers guidance were perceived to **lack relevance** to those pupils likely to go on to **employment**. Pupils intent on leaving education required further information on different kinds of jobs and also on combining work with training (Maychell *et al*., 1998; Stoney *et al*., 1998; Howieson and Semple, 2001). In addition, young people have felt it important that all pupils have the opportunity to find out about jobs, trades and work-related training (irrespective of expected or intended post-16 destination) (Foskett *et al*., 2003; Moor *et al*., 2004).
- Greater promotion of **pupils' decision-making skills**, self-awareness in terms of strengths and weaknesses and careers research skills may be required. Pupils' skill-set was found to be generally lacking in these areas (Morris *et al*., 1999a; Stoney *et al*., 1998).

Work-related learning

- Pupils were **positive about work experience** and placements. They valued being given responsibility, being treated like an adult, team working and the social aspects of being alongside colleagues (Hall and Raffo, 2001; Hillage *et al*., 2001). On the other hand, being on placement could cause feelings of isolation (Hall and Raffo, 2001; Ahier *et al*., 2000) and some pupils experienced difficulty dealing with conflicts (Hall and Raffo, 2001). Greater preparation in terms of pupil – teacher and pupil – employer dialogue may be required prior to placements.

- From work experience placements, pupils gained **skills for work** especially in terms of working with others, self-confidence and problem solving (Hillage *et al*., 2001; Watson *et al*., 2000, 2002) and also with regard to punctuality, reliability and prioritising. However, there was less evidence that they gained in terms of **economic understanding of the world of work** (Ahier *et al*., 2000).
- On the whole, pupils were **positive about vocational options** and perceived relevance in the vocational curriculum to the world of work (Saunders *et al*., 1996; Haynes and Wragg, 2002). Work experience and programmes of work-related learning enhanced pupils' perceptions of vocational (versus academic) relevance (Hillage *et al*., 2001; Watson *et al*., 2002). However, pupils who had not yet experienced a vocational curriculum remained less certain of its relevance or appeal to pupils (Watson *et al*., 2002; Haynes and Wragg, 2002).
- Work-related learning did not have a demonstrably positive impact on pupils' attitudes towards school and indeed in some cases, consolidated negative attitudes in this regard (Hall and Raffo, 2001; Hillage *et al*., 2001). On the other hand, work-based learning did enhance pupils' attitudes towards learning and was suggested as a useful motivational tool and appropriate route for pupils of low ability (Saunders *et al*., 1996; Watson *et al*., 2000).

With regard to **careers education and work-related learning**, overall, pupils recommend:

- the **timing** of careers advice and guidance should be early – e.g. earlier than years 9, 10 and 11 (which is the general experience reported by pupils)
- to include advice from people ***in the know*** (as with PSHE from professionals in the field, as well as students on courses that pupils are interested in)
- to inform **all** pupils on the **full range of post-16 options**
- to ensure that **all** pupils have the opportunity to **find out about jobs, trades and work-related training**.

Reflecting the findings from section 3.2.7, pupils would seem to need help with recognising their own learning strategies and with developing their research and study skills.

3.2.9 Assessment

Pupils' views on assessment forms one of the **more commonly researched themes** within this review. In total, 48 items included in the review consider pupils' experiences and perceptions of assessment. Studies have investigated pupils' experiences of national assessment as well as of teacher and in-classroom assessment methods more generally. From both these arenas, findings cover: pupils' values and awareness of 'tests and testing'; the impact of assessment on pupils (including issues relating to stress and self-esteem); their preferences for different assessment methods (e.g. coursework, examinations, continuous assessment, etc); their opinions on actual assessment instruments and questions and areas related to Assessment for Learning, such as formative feedback and target setting.

Values associated with assessment

- Pupils believe that tests and examinations are **important** and feel they are a **valid** method of assessment ('*a good idea*') (e.g. Massey *et al*., 2003; Lyle and Hendley, 1998; Harland *et al*., 1999a; Hamilton and Brown, 2005).
- Pupils also feel that tests have **long-term consequences** or implications, though retrospectively, the perceived significance of exams taken earlier in their educational career may diminish (Lyle and Hendley, 1998; Reay and William, 1999; Worrall, 2001; Harland *et al*., 2003).
- Pupils suggest that tests can provide **points of motivation** throughout their school careers and some pupils (in particular high attainers) enjoy tests (e.g. McNess *et al*., 2001; Harland *et al*., 2005).

The impact of assessment on pupils

- However, it has been shown that **pupils are anxious about national tests throughout their school careers**. This is the case at primary level, in relation to National Curriculum tests (e.g. Davies and Brember, 1997; 1999; Leonard and Davey, 2001; McNess *et al*., 2001); at secondary level in relation to key stage 3 National Curriculum tests (e.g. Hendley and Lyle, 1998; Massey *et al*., 2003) and GCSEs (Denscombe, 2000; Hamilton and Brown, 2005; Rogers, 2003), where obtaining good grades was felt especially important.

- As well as at these points of national assessment, **classroom assessment** also provokes similar emotional responses (Doddington *et al*., 2001; Wade and Moore, 1993b; McNess *et al*., 2001). **Feelings of anxiety** can also be apparent both pre- and post-exam (e.g. waiting for results) (e.g. Butterfield, 1993; Doddington *et al*., 2001; Leonard and Davey, 2001; Massey *et al*., 2003; Reay and Wiliam, 1999).
- **GCSEs** were found to be a source of considerable stress for pupils in year 11. Viewed as the first tests where '*the results really mattered*', the pressure of an ongoing coursework schedule, coupled with reminders of deadlines and the emphasis on the importance of doing well in exams, was a further source of stress (e.g. Denscombe, 2000; Hamilton and Brown, 2005; Rogers, 2003). Stress at the time of GCSEs was also found to be related to: personal expectations; expectations of parents; families'/siblings' levels of achievement and perceptions of ability (e.g. Denscombe, 2000; Hamilton and Brown, 2005).
- During periods of assessment, pupils have noted changes in classroom atmosphere and ambience (Davies and Brember, 1997; Leonard and Davey, 2001; Harland *et al*., 1999a). Pupils have depicted a less supportive, less collaborative, monotonous and **pressurised environment** (e.g. '*not being able to work together or help each other*' as this now constituted cheating – Reay and Wiliam, 1999). Pupils have also noted a change in their experience of the curriculum – **narrowing as examinations approach** to a focus on maths, language and science (e.g. Reay and Wiliam, 1999; Harland *et al*., 1999a; Remedios *et al*., 2005).
- A theme running through the findings is the impact of assessment on **learner identity**. Pupils' attitudes showed a sense of increased **competition** around external examinations, an awareness of differential ability and an '***academic pecking order***' and the ranking of themselves either against peers or somewhere on the scale of National Curriculum 'levels' (e.g. Harland *et al*., 1999a; McNess *et al*. (2001), Reay and Wiliam (1999) and Worrall (2001) at the end of key stage 2 and Cassady *et al*. (2004) in relation to the use of self- and peer-evaluation in years 9 and 11).
- Notwithstanding all the above, Worrall's (2001) retrospective study found that, in most cases, attainment at key stage 2 did not have a long-term negative impact on pupils' perceptions of self-as-learner.

Perceptions of assessment methods

Overall, pupils would seem generally happy with the assessment arrangements they experienced. A range of preferences have been expressed for the different assessment methods. In the Northern Ireland Study, such views were found to be as individual and varied as the students themselves rather than substantial collective findings (Harland *et al*., 2005). However, some collective views and recommendations could be garnered from the review and these are presented in Case Box 5 below.

Case Box 5 Pupils' views on assessment methods

Coursework

- opportunities for using own initiative and responsibility (Reid and Jones, 2002; Harland *et al*., 2003)
- opportunity to demonstrate individual interest and capability (Harland *et al*., 2003)
- a 'fairer' method of assessment than that judged by 'performance on the day', (AQA, 2001) but concern over fairness regarding the degree of teacher input (Harland *et al*., 2003)
- valued in subjects pupils enjoyed; viewed as 'tedious' in subjects not enjoyed (QCA, 2005)
- demanding in terms of amount rather than level of difficulty (Harland *et al*., 2003)
- better guidance on the amount of work required (Harland *et al*., 2003) and on how marks are gained (Bishop *et al*., 1999)
- girls preferred coursework more than boys (Harris *et al*., 1993; Bishop *et al*., 1997).

Written examination papers

- a clear-cut indication of how you are doing (Harland *et al*., 2003; McNess *et al*., 2001)
- concern over fairness of examination conditions – e.g. nerves, time pressures, performance on one day, a test of memory (e.g. Harland *et al*., 2003)

	• boys preferred exams more than girls (Harris *et al*., 1993; Bishop *et al*., 1997).
Practical examinations	• allow pupils to put their skills into practice • nerves and pressure to 'get it right' prevent pupils from getting the best results (e.g. in music exams, Harland *et al*., 2003 and in science, where pupils also felt the teachers could get 'better' results when they carried out experiments, Murray and Reiss, 2005).
Modular courses	• '*helps break it up a bit*' • prevents the rush at the end of the course • offer the potential for accumulating marks (Harland *et al*., 2003) • very positively received in science (Murray and Reiss, 2005).

Assessment instruments and questions

- Pupils have been found to favour **computer-based formats** of assessment for reasons including fun, because it is practical, there is less writing involved, tasks being more like games than work, variety and liking the computer (Singleton, 2001; Johnson and Green, 2004; Richardson *et al*., 2002; Royal-Dawson and Ebner, 2003). However, more opportunity to make notes before typing answers has been requested by pupils and the amount of space available for answers was raised as a concern (e.g. Royal-Dawson and Ebner, 2003).
- Conversely, Fiddes *et al*. (2002) found that secondary pupils favoured **paper-based assessment instruments**. They felt that computer-based tests were more stressful, more difficult and overall, not an improvement on the 'traditional' format (e.g. Richardson *et al*., 2002). Older pupils retained a preference for being able to '*jot things down*' on paper, whilst primary pupils were found to have a more *flexible* approach to problem solving (Richardson *et al*., 2002; Johnson and Green, 2004).
- Misinterpretation, lack of recognition, pre-conceptions and expectations, or indeed, over-familiarity with the context of exam questions has been found to

impact on pupils' performance (e.g. Grainger, 2003; Sweiry *et al*. 2002; Butterfield, 1993; Cooper and Dunne, 1998; Green *et al*., 2001).

Areas related to Assessment for Learning

- Pupils are most aware of 'overt' tests (particularly national tests) and are less conscious of continual or 'embedded' teacher assessment (Doddington *et al*., 2001; Worrall, 2001).
- Formative assessment and feedback has been found to engage pupils in their own learning and to **aid their progress** (e.g. Markwick *et al*., 2003; Lee and Gavine, 2003; Davies *et al*., 2004). Indeed, discussion about learning seems important to pupils. For example, year 7 pupils in Lee and Gavine (2003) felt that **more discussion about learning** would be beneficial; likewise, key stage 4 pupils expressed a desire for **more opportunity to talk to their teachers** individually about their work and progress in the Northern Ireland Cohort Study (Harland *et al*., 2003).
- However, formative elements only, such as **teachers' written or oral comments** have been seen as less helpful methods of assessment and providing **insufficient information**, than examination, reports, tests and marks or grades (e.g. in the first year of secondary school in Harland *et al*., 1999a and b and Smith and Gorard, 2005). Pupils continue to **desire an ordinal ranking for their work** (Davies *et al*., 2004).
- A **balance and range of assessment methods** appears desirable. Oral feedback and longer written commentary are rated as helpful by pupils, alongside examination marks and grades (Ronayne, 1999; Worrall, 2001; Harland *et al*., 2003) and pupils have valued the full range of formal and informal, teacher- self- and peer-led evaluation in primary school (Atkinson, 2003; Tunstall and Gipps, 1996).

Pupils' experiences of **assessment** reveal the following overall:

- Assessment is **important** to pupils – national tests provide points of **motivation** for pupils. However, pupils are also **anxious** about national tests throughout their school careers.
- A **range of assessment methods** is appreciated. **Coursework** is felt to provide opportunity to demonstrate individual interest and capability, although more guidance is requested on what is expected and how marks are gained.

Written exams are valued for their 'clear-cut' indication of how pupils are doing, although concerns over the pressures of the day are evident. **Modular courses** perhaps offer a best fit – breaking up the work into manageable portions and offering the potential for the accumulation of marks.

- **Discussion about learning** is also important to pupils. Learners would like **more opportunity to talk to their teachers** about their progress. However, ordinal, **clear-cut marking and ranking** of their work and progress is also desired.

3.2.10 Achievement and ability

Findings relating to the combined themes of achievement and ability encompass pupils' perceptions of: success, 'making progress', the effort they are prepared to expend (or otherwise), their confidence and academic performance, ability rankings against peers and the labels and values that pupils associate with different levels of ability.

In the curriculum research reviewed, the theme emerges in a reasonably sizeable number of publications (50 sources), although usually alongside assessment, enjoyment and perceptions of difficulty – rather than as a distinct substantive theme itself. Wider views on achievement and ability can be found elsewhere in the literature (Lord and Johnson, 2004), where researchers have largely been concerned with **the interaction of 'internal' and 'external' strategies in achievement** (e.g. Lee and Gavine, 2003; Pearson, 2003; Williams *et al*., 2004; Lord *et al*., 2005; Lord, 2005).

Doing well / not doing so well

- Learners have **identified a number of attributions related to 'doing well'**. These include: effort; ability; appropriate use of strategy; interest; the contribution of the teacher and the nature of the task (e.g. Pearson, 2003; Williams *et al*., 2004).
- Pupils have particularly associated lower levels of achievement with **shortcomings in their teaching**, e.g. changes of teacher or 'bad' teaching were associated with poor results in maths at key stage 4 (Grainger, 2003). However,

pupils have also nominated **internal factors** such as their own learning strategy and interest as important to both success and failure (e.g. key stage pupils in Williams *et al*., 2004). Thus, achievement and underachievement are also seen by learners to be within their control.

Gauging and recognising achievement and progress

- Pupils view their own learning strategies as helping them in their work (Lee and Gavine, 2003). In contrast, they seem to place greater reliance on **external strategies to gauge their achievement** and progress (e.g. Lee and Gavine, 2003 and Harland *et al*. (2002) which reported that the majority of pupils in key stage 3 considered examinations to be '*the most effective means of identifying their progress and attainment*' (p.117)).
- That said, **pupils sometimes underestimate their abilities** (e.g. Blatchford, 1997; Cooper and Dunne, 1998; Lyle and Hendley, 1998; Lee and Gavine, 2003; Davies, 2004). There can be a mismatch in pupils' self-perceptions of their achievements and their actual abilities according to examination results. Pupils can feel they are not doing well, but still achieve good grades (Harland *et al*., 2003; Graham, 2002).
- Pupils' confidence in their ability was found to decline with age (Colley *et al*., 1997; Grainger *et al*., 2003; Davies, 2004).
- There is also some **gender variation** in pupils' estimation of their ability. Generally speaking, boys tend to feel confident in their abilities in maths (Osborne *et al*., 1997), science (Lyle and Hendley, 1998), PE (Fairclough, 2003) and in using computers (Colley and Comber, 2003b). However, in terms of the accuracy of pupils' self-estimations, it has been found that girls predict their results more accurately than boys in maths and English (Lyle and Hendley, 1998) and in French (Davies, 2004) – where in fact boys tended to overestimate their ability.

Values and labels

- What counts as achievement in pupils' eyes is not always commensurate with the intended schema. For example, Lyle and Hendley (1998) note that pupils' perceptions of key stage 2 National Curriculum tests results signified a labelling of *each other* as '*a, b or c*' (see also Leonard and Davey, 2001 on the 11-plus exam). As noted in section 3.2.9, **self-labelling by pupils** in accordance with

their 'class ranking' (e.g. McNess *et al*., 2001; Cassady *et al*., 2004) or against assessment results (e.g. National Curriculum tests in Reay and Wiliam, 1999) **can have negative influences on self-esteem**.

The findings presented here from the curriculum-based research most likely touch the surface of findings within the '**achievement**' literature. With regard to the pupils, the key findings would seem to be:

- **Internal strategies** and factors (e.g. interest, own effort, ability, enjoyment, own goals) are important to pupils in helping them work and make progress – resonating with current policy and practice regarding Assessment for Learning. **Actual increases** in achievement through such activities as goal setting and self-evaluation are also in evidence.
- However, **explicit measures or markers** against which pupils can gauge their progress are perhaps more readily recognised by pupils.
- Pupils **internalise messages** about achievement, making progress and doing well, such that there is sometimes a **mismatch** between their perceptions (and labels) and their actual attainment and abilities. Again, the need for explicit markers and a match of teacher – pupil ratings would seem important.
- It is generally not the curriculum *per se* that pupils associate with *doing well … not doing so well*. Rather, it is the mediation of the curriculum that pupils call into view (e.g. **how it is taught**, the teacher …).

Overall, the findings resound with those drawn out on assessment, above; namely the need to employ **a range** of methods (formative and summative; formal and informal; teacher-led and peer-led; internal and external strategies) to enable learners to judge their achievement.

3.2.11 Manageability

The theme of manageability is relatively small compared with others in the review (34 sources). It covers pupils' perceptions of the level of difficulty in their work and the amount of work they are required to do. Findings from across the full time period of the review point towards similar areas of difficulty for pupils.

- Pupils find their work difficult where it entails **high literacy demands**. '*Too much writing*' can prove unmanageable (e.g. across the curriculum, Harland *et al*., 1999a and Morris *et al*., 1996; within history, Biddulph and Adey, 2003).
- **Heavy workloads** have been noted, for example in history, geography and science (e.g. Biddulph and Adey, 2003; Murray and Reiss, 2005).
- 'Too much' has also been construed as '***a lot of learning***' (e.g. in maths, QCA, 2004a) and '***too many facts***' (e.g. in science, Murray and Reiss, 2005). Related to this, learning can also be demanding in terms of concentration and **memory** (Clark and Trafford, 1995; QCA, 2004b; Murphy and Beggs, 2001). The **depth** of understanding required can also be difficult (e.g. Adey and Biddluph, 2003 in history).
- The **abstract** nature of some parts of the curriculum (e.g. maths) is difficult for pupils; as are certain **concepts** (e.g. topics like forces in science, Murphy and Beggs, 2001; QCA, 2004b).
- **New** topic areas can also be difficult for pupils (especially in the transition from key stage 3 to key stage 4, e.g. Harland *et al*., 2003 and Biddulph and Adey, 2003 both found this to be the case from pupils' views on geography).
- **Pace** also causes some difficulty – too slow and pupils feel like they are not learning well (e.g. Boaler, 1997); likewise for 'too rushed' (e.g. the science curriculum at key stage 4 – Osborne and Collins, 2000).

Overall, pupils' perceptions of **manageability** are associated with:

- literacy demands
- workload
- too much content (e.g. too many facts, memory demands)
- concepts that are abstract in nature
- new learning
- inappropriate pace.

In addition, findings from the research into enjoyment consistently highlighted 'level of challenge' as a factor in pupils' positive attitudes. The links between **appropriate challenge**, **enjoyment** and **achievement** from the pupils' perspec-

tive as well as being drawn by researchers, seem almost irrefutable in the findings. As Glover and Law (2004) recently found, the level of challenge in their work was key to pupils' positive views about their learning environment:

> *'Challenge – the extent to which students are stimulated to learn at the level of their individual potential. Learning experiences were rated more positively where they feel under pressure but know they can achieve and will be encouraged and praised for their achievement'* (Glover and Law, 2004, p.330).

3.2.12 Continuity and progression

The theme of continuity and progression makes up a not insignificant body of research by volume (35 sources). A number of studies provide findings on young people's sense of continuity, progression and **preparedness** for their next **year** or phase of schooling; a few consider continuity within subjects, **lesson-to-lesson** and the building-up of pupils' learning. Many of the findings, however, highlight the theme from researcher inference (e.g. by tracking pupils' views on other themes, or through age/year-group comparisons), rather than based on what pupils actually say about continuity and progression in the curriculum.

Year-to-year

- The main body of research at **key stage 2–3 transfer** has focused on pupils' experiences of continuity and progression and the disruption or otherwise to their enjoyment and engagement with the curriculum. At **primary–secondary** transfer, researchers suggest **a downturn in pupils' engagement** with the curriculum. The pupils themselves would seem to indicate the same (e.g. Galton *et al*., 2003; Harland *et al*., 1999b, 2002), although few studies have longitudinally tracked what pupils actually say on this theme.
- In general, the Northern Ireland Cohort Study found that the vast majority of pupils felt that their previous year of schooling had **prepared them well** for their current year. However, pupils indicated **some difficulty in transition between key stages 3 and 4** (Harland *et al*., 2003).
- At the transition point from **key stage 4 to post-16**, again the young people in the Northern Ireland Cohort Study transferring to AS, A level and Advanced Vocational Certificate of Education (AVCE) studies felt generally **well prepared** and a sense of continuity and progression in their subjects. However,

those going on to work-related training and employment felt less well prepared (Moor *et al*., 2004). (This issue links with section 3.2.1 with regard to the vocational relevance of the curriculum.)

- Pupils have noted a degree of **repetition** in their curricula learning. This would seem to be particularly great between key stages 2 and 3 (results found in Harland *et al*., 2002 and also noted in science-based research – see below). Osborne and Collins (2001) in science at key stage 4 also indicated repetition from earlier years and for some pupils this contributed to a lack of interest in the subject.
- The transition from year 7 to year 8 reveals **a dip in pupils' motivation** (e.g. Demetriou *et al*., 2000; Sharp, 1998). Pupils felt that year 8 lacked a sense of identity and presented a year in which they were both growing up and also one of the last in which they felt they could 'have a laugh' (see also section 3.2.2 on enjoyment).

Research specifically into **science**, rather than across the whole curriculum, has provided the main volume of the studies in this arena. Case Box 6 below summarises the key findings from the science-based research, with selected references.

Case Box 6 Pupils' perspectives and experiences of science at key stage 2–3 transfer

Key findings

- pupils experience some 'discontinuity' in science across key stages 2 and 3
- perceptions relaying 'discontinuity' variously cover: different teaching styles, different 'content', different 'equipment', different levels of 'real-life' relevance (recognised in year 6 and expected even more so of year 7 but not always experienced as such)
- pupils also experience repetition of work without sufficient challenge in science in year 7
- taken as a whole, the evidence suggests that pupils have less enthusiasm for science in year 7 than in year 6
- however, findings also suggest that the downturn in pupils' attitudes towards science may occur towards the top end of primary school, rather than with transfer and thus further research in this particular area may be required in order to unravel the issues.

Implications

The following areas might be considered in achieving a greater sense of continuity between key stage 2 and key stage 3 science:

- greater attention to year 7 pupils' previous curriculum experiences, including curriculum content and learning/delivery styles – to enhance continuity and alleviate apprehension in new learning styles or new topic areas
- to capitalise on the enthusiasm and expectations of year 6 pupils, for their year 7 experiences
- to contextualise the curriculum in year 7 (e.g. making connections to 'real-life') such that pupils can see its relevance to the real world as they had done in year 6
- to increase the level of challenge and to reduce the level of repetition in the year 7 science curriculum, in order to enhance enjoyment
- on the other hand, some sense of 'discontinuity' may be preferable for some pupils, allowing a fresh start in the 'move up to big school'.

Selected references (continuity and progression *and* science):

Braund, M. and Driver, M. (2002). 'Moving to the big school: what do pupils think about science practical work pre- and post-transfer?' Paper presented at the Annual Conference of the British Educational Research Association, University of Exeter, Exeter, 12–14 September.

Braund, M. and Driver, M. (2005). 'Pupils' perceptions of practical science in primary and secondary school: implications for improving progression and continuity of learning', *Educational Research*, **47**, 1, 77–91.

Hawkey, R. and Clay, J. (1998). 'Expectations of secondary science: realisation and retrospect', *School Science Review*, 79, 289, 81–3.

Jarman, R. (1993). '"Real experiments with Bunsen burners": pupils' perceptions of the similarities and differences between primary science and secondary science', *School Science Review*, **74**, 268, 19–29.

Woodward, C. and Woodward, N. (1998b). 'Welsh primary school leavers' perceptions of science', *Research in Science & Technological Education*, **16**, 1, 43–52.

Within subjects and lesson-to-lesson

- According to the pupils, the perceived benefits of continuity within subjects include: 'build-on' and revisiting work to '***jog memories***'; making progress by '*moving on to* ***new work***' (e.g. Martin, 2002, in modern foreign languages in primary school); enhanced **enjoyment** and appreciation of a subject's **relevance** (e.g. Harland *et al*., 2002, 2003).
- However, whilst pupils might espouse the benefits of follow-on and build-on, their **actual recognition** of continuity and progression would seem less certain. The Northern Ireland Cohort Study (e.g. Harland *et al*., 1999a and b; 2002; 2003) found that it was mainly the **high attainers who identified progressive build-up of knowledge and skills** in their learning. Boys and the low engaged also detected less follow-on than their peers.

Pupils' own views on **continuity and progression** reveal the following.

- Pupils feel generally **well prepared** for their next year of schooling throughout their school careers.
- However, pupils note issues such as different teaching styles, different teachers and different content as contributing to **a sense of discont-inuity** – for example at key stage 2–3 and 3–4 transitions.
- **Repetition** year-to-year is associated with lack of progression by pupils. A **dip in pupils' motivation** in year 8 would also seem to contribute to lack of progression.
- Pupils themselves perceive **build-on** and follow-on within subjects as beneficial in terms of 'jogging memories', making progress, moving on, increased enjoyment and perceived relevance. However, there is some evidence to suggest that their **recognition of progression** and build-up of knowledge and skills might be improved.

3.2.13 Breadth and balance

The key findings on the breadth and balance of the curriculum from the pupils' perspective come from a relatively small number of sources in the review (27 sources). To some degree, there is a level of consensus across these sources. However, there is also breadth itself in the range of pupil opinions expressed.

Across the curriculum

- Pupils have expressed a need for **greater balance between 'academic' subjects and those that are more 'creative', 'practical' or 'vocational'** (Haynes and Wragg, 2002; Harland *et al*., 2003). In these studies, pupils perceived an over-representation of subjects such as English and maths (e.g. Harland *et al*., 1999b and 2003 – at key stage 3) and inadequate coverage of curriculum areas such as IT, PE, the arts, design and technology and health-related subjects like child development (Haynes and Wragg, 2002; Harland *et al*., 2003).
- Pupils have also recommended **greater representation** within the curriculum of subjects not necessarily offered as part of the statutory curriculum: for example, philosophy, psychology, sociology and media studies (e.g. Burke and Grosvenor, 2003; Haynes and Wragg, 2002). Similarly, pupils in Foskett *et al*. (2003) made suggestions for a broader curriculum, in particular **to offer a wider range of subjects at key stage 4** that would also relate more directly to courses in further education (FE).
- On the other hand, pupils also make recommendations for **slimmer subject curricula content** (emanating, for example, from suggestions of '*too many facts' and 'too much reliance on memory rather than understanding*') (e.g. Harland *et al*., 2002; Murray and Reiss, 2005). In a student-led review of the science curriculum, the young people themselves recommended slimmer content at key stages 3 and 4 to allow for greater in-depth and detailed treatment (Murray and Reiss, 2005). Note, however, that depth has also been related to difficulty by pupils in science (QCA, 2004b). Perhaps the common aspect across the pupil views here is a desire for 'less content'.
- Pupils themselves have highlighted how **balance** can be achieved – from their perspective through **greater relevance** to life and work (e.g. QCA 2004b; Moor *et al*., 2004) and by avoiding over-emphasis on one type of task or learning style, or on the time spent on a particular topic (Harland *et al*., 2005).

- Interestingly, in the Northern Ireland Study, although with hindsight one-third of the 100 interviewees interviewed at aged 17/18 years felt that the time spent on English and maths in key stages 3 and 4 was appropriate after all, they still recommended greater emphasis on skills, practical activity and the application of knowledge in the curriculum at key stages 3 and 4 (Moor *et al*., 2004).
- As seen in section 3.2.9, approaching **assessment** has an impact on pupils' experiences of breadth and balance. Both Reay and Wiliam (1999) and Harland *et al*. (1999a) found that pupils perceived **a narrowing of the curriculum as national tests approach** (in the key stage 2 National Curriculum tests and the Northern Ireland Transfer Test respectively). Pupils noted both a change in content – towards a greater focus on maths, literacy and science (perceived as over-representation) – and a change in pedagogy (e.g. less supportive, more pressurised).

Within subjects

Within subject areas – notably PE and science – the breadth, range and depth of activities on offer and the 'balance' of those activities have also been raised in the research findings.

- The body of research into PE in particular points to a need for balance in the types of activity on offer – for example, balancing competitive versus passive and team sports versus individual activity (Woodhouse, 1996; Milosevic, 1996; Fairclough, 2003; Bramham, 1993). However, breadth of content might also be important. For example, there were calls for mountain biking and canoeing lessons in PE (Bramham, 2003 – a study on boys' views of PE).
- On the other hand, rather than breadth, pupils themselves have also recommended **depth** within subject areas (e.g. a slimmer **science** curriculum to allow for more in-depth and detailed treatment, as noted above (Murray and Reiss, 2005)).

In both these subject areas, **gender differences/**preferences have also been investigated and a number of authors have asked whether it is possible to construct a curriculum to provide balance for both boys' and girls' preferences (e.g. Fairclough, 2003; Jenkins and Nelson, 2005; Milosevic, 1996; Woodhouse, 1996). (See section 5 on implications for further details.)

Pupils' views on **breadth and balance** can be summed up overall.

- Pupils express a need for balance between **academic subjects** and those that are more **creative, practical or vocational**.
- They suggest **greater representation** of subjects not necessarily offered as part of the statutory curriculum (e.g. philosophy, psychology, sociology, etc.).
- They appreciate the options that **a broad curriculum** offers – including the opportunity for choice or to take a wide range of subjects at key stage 4 (see implications section 5 for further discussion on this).
- In some instances, pupils recommend **slimmer subject content** (i.e. away from 'too many facts', 'reliance on memory' and so on), although by this they do not necessarily imply less **depth**.
- **Variation** in activities, avoidance of **over-emphasis** on one type of task and making learning **relevant** to life and work, contribute to pupils' improved perceptions of balance.

3.2.14 Coherence across the curriculum

The coherence of the curriculum is **one of the least studied** aspects of the curriculum from the learners' perspective – with just eleven studies providing key findings for this category in the review.

Across the curriculum

- Although few studies have investigated pupils 'whole curriculum experience', the findings would suggest that it is **rare for pupils to be aware of their total learning experience** (Glover and Law, 2004; Harland *et al*., 2003).
- Pupils rarely see connections outside subject boundaries. A key finding from the Northern Ireland Study was that pupils perceived the 'whole curriculum' as **subject-compartmentalised**. Where pupils do make connections across subject areas, these tend to be internalised as **connected content**, rather than connected skills (Harland *et al*., 2002, 2003). In this study, pupils also felt there were **fewer connections across their key stage 4** curriculum than there had been at key stage 3 (Harland *et al*., 2003).

Within subject areas

- Similarly, within a subject area, pupils **rarely experience** '**interconnections**' (e.g. Goodchild, 1995 on year 10 maths; Hendley and Lyle, 1996, on design and technology). In Osborne and Collins (2001), pupils perceived the key stage 4 science curriculum to be disjointed; they **did not recognise commonality** between biology, physics and chemistry and experienced their science lessons as 'chopping and changing' each day.
- However, a sense of **connectedness** or 'subjects fitting together' does seem to be **important to pupils** (e.g. Rudduck *et al*., 1994, found this to be the case particularly by year 9, interestingly where it was not so important in the preceeding two years). Pupils taking the three sciences have requested the inclusion of some topics which **overlap** biology, chemistry and physics (QCA, 2004b). Connections have been perceived by pupils to be **beneficial to their learning** (for example, to manageability, understanding, recall, depth and breadth of learning, enjoyment and relevance – Harland *et al*., 2003).
- Despite a sense of coherence and integration across the curriculum being important to pupils, some sense of **contained learning** might also be beneficial. In Murray and Reiss (2005), pupils felt that science should be integrated with other subjects, particularly at primary level, but they also recommended that the science curriculum should include a coherent treatment of the maths needed for science (i.e. in addition to the maths covered in maths lessons; *maths for science* should also be contained coherently within science).

With other learning

- Although not a key finding directly from the pupils themselves, a number of researchers have inferred benefits in linking pupils' out-of-school experiences to their curriculum learning (e.g. Newton and Newton, 1997 in science and Kent and Facer, 2004 on ICT). And in a study of sporting activities with young people with severe learning difficulties, the researchers suggested that employing a 'connective pedagogy' between school and community life would enhance lifestyle promotion for these young people (Fitzgerald *et al*., 2003).

Overall, pupils view their curriculum learning experiences as **subject-compartmentalised**. They rarely voice perceptions of interconnections or ***whole curriculum*** **experiences**. However, where recognised, **connections across**

subject areas are felt by pupils to be important and **beneficial** to their learning and understanding. As well as this kind of lateral coherence **across** the curriculum, contained learning **within** subject areas might also provide pupils with a sense of coherence in terms of a whole treatment of an issue.

3.2.15 Curriculum change

This category was originally intended to consider pupils' experiences of curriculum change since the introduction of the National Curriculum (i.e. early 1990s' research may have captured this). As the length of time from this date (1988) increases, the research in this field has inevitably dwindled. However, with the introduction of other initiatives and changes to the curriculum throughout the 1990s and early 21st Century, other research has also been included here (30 sources in total). Examples include research on: the Literacy Hour (e.g. Fisher, 2001; Hancock and Mansfield, 2002 and other publications not summarised for the review such as Wallace, 2005; Sainsbury, 2004); the National Literacy Strategy (e.g. Diment, 2003; Galton *et al*., 2003); the work-related curriculum (e.g. Hillage *et al*., 2001); National Curriculum assessments (e.g. Johnson, 2002 and 2003) and research inspired by the National Curriculum orders for PE which emphasised inclusivity (Williams *et al*., 2000). Research has also consulted pupils prior to the introduction of local curriculum policies (e.g. Haynes and Wragg, 2002, on the introduction of a city-wide vocational curriculum) and to inform National Curriculum review (e.g. Harland *et al*., 2002).

Pupils' views on such strategies or changes associated with them have not generally been directly sought. Rather, researchers have set pupils' perceptions within the context of change and researcher-inferred implications and recommendations for the curriculum have been drawn. An illustration of some of the research in this category and its implications is presented in Case Box 7.

Case Box 7 Research set in the context of curriculum change

A National Curriculum …

- MORI (1998) found that pupils seemed in general unable to articulate the purpose of the National Curriculum – other than its intention of ensuring a standard education across the nation.
- In general, pupils were in favour of a National Curriculum for consistency, but at that time were critical of the lack of apparent flexibility and choice they felt it provided.

A decade of change …

- Brown (2001a) and Bell (2001) monitored subject choice and standards. They found that gender differences in subject choice had decreased.
- Davies and Brember (2001) monitored standards in English and maths and found them to be 'stable' (according to standardised tests).
- Comparing 1984 and 1996 survey results, Stables and Wikeley (1997) found little change in subject preferences pre- and post- National Curriculum, with the exception of a fall in the popularity of English at the time.

Tracking the change

- Woodward and Woodward (1998a) considered the influence of the National Curriculum on pupils' science attitudes by exploring successive year 6 pupils' views on science (1991, 1993, 1995) – thus taking account of the rolling introduction of National Curriculum science in the primary school.
- Over this time period, pupils' confidence in science increased, as did its popularity and perceptions of its relevance to future careers (although these were all noted as association, not causal).

The literacy hour

- Hancock and Mansfield (2002) and Fisher (2001) found that pupils recounted differences between the literacy hour and normal class teaching. These included: faster pace,

	stricter teacher, extended writing (enjoyed by girls, less so by boys) and distinct plenary sessions (deemed 'boring' with not enough pace by some). • Pupils also noted a different environment (e.g. work on the carpet – no longer an area solely for 'relaxation'). With curriculum changes come changing views and priorities, not only in pedagogy, but in classroom environment.
Assessment	• Results from Davies and Brember (1997 and 1999) at that time found a drop in key stage 1 pupils' self-esteem since the introduction of national tests at year 2. • However, by the time this year 2 group reached year 6, there was a rise in year 6 pupils' self-esteem related to testing. This might be due to increasing maturity, or the influence of an established test culture.
The Key Stage 3 Strategy	• Carnell (2004) explored young people's views on learning, expectations, progression, engagement and transformation, in the context of the Key Stage 3 Strategy (DfES, 2003c). • The Key Stage 3 Strategy appeared to result in teachers 'covering content' rather than delivering the curriculum and the engagement of young people in lessons rather than in learning. • Pupils' own accounts suggested performance-oriented, rather than learning-oriented, experiences. Implications for greater attention to Assessment for Learning were drawn.

As can be seen above, involving the student voice in curriculum innovation and change has been valued over many years. Mac An Ghail (1992) involved pupils in curriculum change in one school and noted particular needs for pupils to be supported and inducted in curricular innovations. Furthermore, Davies and Brember (2001, p.39) recommended '*a continuing policy of research to try to unravel the effects of the National Curriculum*' including from the learners' perspective.

Pupils' views on **curriculum change** cannot be summed up overall, but rather can be seen in context of specific initiatives and curriculum developments – as shown above. A greater focus of research in the context of curriculum change and development might be considered.

3.2.16 Out-of-school influences

This category takes account of the out-of-school experiences that were noted in the curriculum-based research we reviewed and that influence pupils' attitudes or understanding in the curriculum. Areas of influence include: ICT, magazines, media, friends, parents, participation in out-of-school sports and so on. Selected findings from the 18 sources reviewed here include the following.

- Young people's out-of-school experiences of **ICT** affect pupils' overall attitudes towards 'computers' (e.g. Comber *et al*., 1997; Colley and Comber, 2003a). **Outside expertise and help** with ICT was relied upon by primary pupils (Selwyn and Bullon, 2000).
- **Reading at home** can have a positive effect on pupils' reading at school, particularly where a **significant other** is read to in both contexts (Pearson, 2003). **Friends and relatives** were found to be an important source of pupils' **historical information** – books and TV less so (Barton, 2001).
- **Media and magazines** inform pupils with regard to **sex-education** (Forrest *et al*., 2002) and on **citizenship** and civic knowledge (Kerr *et al*., 2001).
- **Connective pedagogies and experiences** are beneficial to pupils' learning. For example, home, peer and out-of-school activities congruent with pupils' school experiences (Reiss, 2000; Fitzgerald *et al*., 2003).

In sum, pupils' **out-of-school** experiences can affect their attitudes towards, understanding and experiences of the curriculum. Drawing on these experiences within school might be beneficial to pupils' learning.

3.2.17 Perceptions of effects and outcomes

Findings referring to pupils' perceptions of the effects and outcomes of education on themselves emerged alongside the curriculum-based research we reviewed. In this context, the findings (from 16 sources) indicate the following.

- Pupils have identified impacts on their **personal and social skills** (e.g. confidence, teamwork) in relation to arts education (Harland *et al*., 2002 across the arts; Collins, 1992 on drama).
- Pupils have also noted developments in their **thinking and critical skills** (again in relation to the arts, Harland *et al*., 2002). Researchers themselves have also observed impacts on pupils' thinking and critical skills when listening to pupils discussing their learning: e.g. thinking skills ('using your brain'); visualising, remembering and memorising and listening ('eavesdropping') e.g. McCallum *et al*. (2000). However, pupils have also noted these arenas as '**missing**' **to some extent**, particularly within science (i.e. absence of a questioning approach and some sentiment that school science does not particularly develop critical or sceptical skills or increase pupils' curiosity, e.g. Osborne and Collins, 2000; Jenkins and Nelson, 2005).
- **Specific programmes** or interventions often have **a positive impact** on pupils' attitudes (e.g. towards sport, the arts and their motivation in general). However, there might also be a negative effect on their perceptions of 'normal curriculum' activity (this seemed to be the case in a Sport Education programme for boys (Kinchin *et al*., 2004) and to some degree, with arts education interventions (Harland *et al*., 2005)).
- In terms of **longer-term impacts** of the curriculum, there is relatively little direct research. However, a study of a Primary Technology Project found long-term impacts on pupils' confidence, independence and ability to work with others in technology in later years in secondary school (Brown, 2001). A recent review on environmental education showed little evidence that longer-term learning outcomes from environmental education have been sought in the research (Rickinson, 2001). However, fieldwork was found to help pupils develop their personal and social relationships in their work (rather than a social/inter-personal sense) (Nundy, 1999).

Findings relating to the effects of 'testing' are outlined in section 3.2.9.

Research into the effects of curriculum experiences on pupils' personal, social, emotional and cognitive skills reveals the potential for both **positive and negative** impacts. More focused research on the effects of the curriculum on pupils' thinking and critical skills might be considered; as well as some longer-term studies in this field.

3.2.18 Values education

This theme considers pupils' experiences and perceptions of values education *per se* as imparted by the curriculum, for example social and moral messages (beyond those associated with citizenship and PSHE, which are reported under cross-curricular themes), nine sources are included. Some of the values that pupils express about education, learning and the curriculum include:

- a desire for a holistic emphasis to teaching and learning (Burke and Grosvenor, 2003)
- a rationale of *basics for all* (Burke and Grosvenor, 2003)
- pupils should learn about children's rights and who to turn to if they experience an infringement of those rights (McKenzie, 2003)
- that values should be mirrored both in and out of school (Burke and Grosvenor, 2003; Fitzgerald *et al*., 2003)
- pupils can take value stances and positions around certain topics within their subjects, for example about environmental issues. Pupils feel that the curriculum should emphasise that there can be *right and wrong* (e.g. Littledyke, 2002; Hopwood, 2005)
- perceptions of the use of calculators in maths as cheating, except where permission for use is given by the teacher (Cole and Newson, 1996; Ruthven, 1995).

As well as the **curriculum**, the **school environment and culture** plays a part in pupils' learning experiences and in imparting values (Morrison, 2000; Osborn *et al*., 2001). As Halstead and Taylor (2000) put it, values are about:

… the principles and fundamental convictions which act as general guides to behaviour, enduring beliefs about what is worthwhile, ideals for which one strives, standards by which particular beliefs and actions are judged to be good or desirable … (Halstead and Taylor, 2000, p.3)

3.3 Key background variables

A number of studies included in this review have analysed pupils' perceptions by variables such as gender, age, ethnicity, social class, ability or special educational needs. Of these, findings by gender and age have been the most frequently sought.[4] The findings are spread across a wide range of themes, subject areas and so on. However, the following cumulative results are evident.

Age[5]

- pupils' enjoyment of the curriculum decreases as they get older (although with some upturn with regard to optional subjects at key stage 4)
- pupils' sense of academic relevance increases as they get older (and with impending national assessment)
- pupils' desire for working independently increases as they get older.

Ability

- lower ability pupils tend to question the vocational relevance of the curriculum and their preparedness for employment (e.g. Boaler *et al*., 2000; Hillage *et al*., 2001; Harland *et al*., 2003)
- lower ability pupils also tend to have lower levels of engagement and enjoyment of the curriculum (e.g. Harland *et al*., 2003)
- perceptions of manageability within the curriculum concern both high and low ability pupils – work can be delivered 'too fast' for high ability pupils (e.g. Boaler *et al*., 2000, in key stage 4), whilst not being challenging enough can be a concern for both low and high ability pupils (Boaler *et al*., 2000; Harland *et al*., 2003)

- lower ability pupils seem particularly at risk of demotivation once they realise certain 'grades' are unachievable and a '*thickie*' and '*boffin*' culture can arise (Hallam and Deathe, 2002; Williams, *et al*., 2002).

Gender

The research covers gender preferences in teaching and learning styles, boys' and girls' motivations, abilities and achievements (e.g. the gender gap). Gender differences in the findings on the whole relay some gender stereotyping in terms of pupils' subject preferences and motivation for subjects – however, this assertion is in itself typecasting. Preferences can be as individual as the pupils themselves. This arena would require further in-depth review of the complex issues and implications that arise in order to unpack the findings. Some of the arenas where gender emerges strongly in the findings include:

- girls appear less confident using ICT than boys
- although many pupils underestimate their abilities, where overestimation occurs this tends to be by boys
- boys would seem to need particular help with motivation and strategies for learning.

3.4 Selected references

To help draw together some of the key findings, Table 1 presents some findings and selected references from across the themes in the review. A full list of references is provided later in the report.

Table 1 Selected findings and references

	Selected references across the themes
Relevance	• a narrow view of literal relevance, influenced by perceived subject status, assessment and 'getting grades'; relevant if relates to real-life (Harland *et al.*, 2003; Reiss, 2001; Adey and Biddulph, 2001)
Enjoyment	• enjoyment and motivation decreases as pupils get older (Harland *et al.*, 2003; Keys and Fernandes, 1993; Woolnough, 1994; Blatchford, 1996; Reiss, 2001; Miller *et al.*, 1999) • enjoyment related to pupils' views on their own ability and being successful. Familiarity helps, but too much routine can lead to boredom. The challenge of the new is also needed (Davies and Brember, 1994a; Pell and Jarvis, 2001)

Table 1 Selected findings and references cont'd

	Selected references across the themes
Enjoyment (*cont'd)*	• a year 8 dip in pupils' motivation (Sharp, 1998; Demetriou *et al.*, 2000; Harland *et al.*, 2003)
Teaching and learning	• 'fun presentation', 'practical activity' – Pell and Jarvis (2001); Murphy and Beggs (2001) • 'using the computer' (West *et al.*, 1997; Selwyn and Bullon, 2000) • working in groups (Lyle, 1999; McCallum *et al.*, 2000) • being given responsibility, but balancing independent working and support (McCallum *et al.*, 2000; Flutter *et al.*, 1999; Newman, 1997) • teachers who explain clearly, who listen, who are fair (Garner, 1993; Rudduck, 1996) • who are interesting and knowledgeable (Younger and Warrington, 1999; Keys *et al.*, 1998)
Activity preferences	• practical activities within science (West *et al.*, 1997; Pell and Jarvis, 2001; Williams *et al.*, 2003; Parkinson *et al.*, 1998; Stark and Gray, 1999) • preferences for writing depending on age (Wray, 1993; Pollard, 1996; Grainger *et al.*, 2003; Fisher, 2001) • preferences for different types of reading material and purposes of reading (Davies and Brember, 1993; Beresford, 1997; Fenwick, 1994; Myhill, 1999) • added dimension, support and versatility that ICT brings to their learning (West *et al.*, 1997; Selwyn and Bullon, 2000; Hall and Higgins, 2005)
Subject preferences	• favourite subjects involve practical activity and practical application (Pollard *et al.*, 1994, 1996; West *et al.*, 1997; Haynes and Wragg, 2002; Harland *et al.*, 2002, 2003; Colley and Comber, 2003a) • subject choices influenced by enjoyment, career usefulness, ability and parental advice (e.g. Haynes and Wragg, 2002; Stables and Wikeley, 1997, 1999; Stott *et al.*, 1997; Adey and Biddulph, 2001) • least favourite subjects and reasons for not choosing related to perceptions of difficulty and irrelevance (e.g. John and Thomas, 1997; Stables and Wikeley, 1999)
Pupils' understanding subjects	• enhanced by relevance and meaning through connections with real life and of other areas of learning (Wright, 1997; Newton and Newton, 1997; Duveen *et al.*, 1993; Ratcliffe, 1998; Berry and Picker, 2000; Catling, 2001; Norman and Harrison, 2004)
Cross-curricular themes and skills	• important and useful (Whitty *et al.*, 1996; Jamison, 2001; Harland *et al.*, 2002 and 2003; MORI, 1998; Halstead and Taylor, 2000; Kerr *et al.*, 2004; Chamberlin, 2003; Lister *et al.*, 2001) • needs to be relevant and enjoyable (Forrest *et al.*, 2002; Twine *et al.*, 2005; Regis, 2000; Harland *et al.*, 2002)

Table 1 Selected findings and references cont'd

	Selected references across the themes
Cross-curricular themes and skills *(cont'd)*	• need to improve research and study skills and strategies for learning (Shenton and Dixon, 2004; Williams *et al.*, 2004; Graham, 2002; Morris *et al.*, 1999a)
Careers education and work-related learning	• timing and sources of information important (Stoney *et al.*, 1998; Howieson and Semple, 2001; Millar and Brotherton, 2001; Harland *et al.*, 2003; Maychell *et al.*, 1998; Foskett *et al.*, 2003; Moor *et al.*, 2004) • positive about vocational learning (Saunders *et al.*, 1996; Haynes and Wragg, 2002; Hillage *et al.*, 2001; Watson *et al.*, 2002; Hall and Raffo, 2001)
Assessment	• exams and tests – important and valid (e.g. Massey *et al.*, 2003; Lyle and Hendley, 1998; Harland *et al.*, 1999a; Hamilton and Brown, 2005) • a source of stress and anxiety (Davies and Brember, 1997, 1999; Leonard and Davey, 2001; McNess *et al.*, 2001; Hendley and Lyle, 1996; Massey *et al.*, 2003; Denscombe, 2000; Hamilton and Brown, 2005; Rogers, 2003; Doddington *et al.*, 2001; Wade and Moore, 1993b; McNess *et al.*, 2001; Butterfield, 1993; Reay and Wiliam, 1999) • references related to Assessment for Learning (Doddington *et al.*, 2001; Worrall, 2001; Markwick *et al.*, 2003; Lee and Gavine, 2003; Davies *et al.*, 2004; Harland *et al.*, 2003; Smith and Gorard, 2005; Davies *et al.*, 2004; Ronayne, 1999; Worrall, 2001; Atkinson, 2003; Tunstall and Gipps, 1996)
Achievement and ability	• external strategies to gauge achievement (Lee and Gavine, 2003 and Harland *et al.*, 2002) • underestimation of abilities (Blatchford, 1997; Cooper and Dunne, 1998; Lyle and Hendley, 1998; Lee and Gavine, 2003; Davies, 2004; Harland *et al.*, 2003; Graham, 2002) • self- and peer-labelling (Lyle and Hendley, 1998; Leonard and Davey, 2001; McNess *et al.*, 2001; Cassady *et al.*, 2004; Reay and Wiliam, 1999)
Manageability	• high literacy demands (Harland *et al.*, 1999a; Morris with Schagen, 1996 and Biddulph, 2003) • 'a lot of content' (QCA, 2004a; Murray and Reiss, 2005; Clark and Trafford, 1995; QCA, 2004b; Murphy and Beggs, 2001; Adey and Biddluph, 2003)
Continuity and progression	• feel prepared year-on-year within the whole curriculum (Harland *et al.*, 1999a, 1999b, 2002, 2003, Moor *et al.*, 2004; Galton *et al.*, 2003)
Breadth and balance	• greater balance required across the curriculum (Burke and Grosvenor, 2003; Foskett *et al.*, 2003; Haynes and Wragg, 2002; Harland *et al.*, 1999a, 1999b, 2002, 2003; Moor *et al.*, 2004)
Coherence	• coherence across the curriculum rarely discussed (Harland *et al.* (1999a, 1999b, 2002; 2003; Rudduck *et al.*, 1994) • coherence within subjects desired (Osborne and Collins, 2001; Murray and Reiss, 2005)

Table 1 Selected findings and references cont'd

	Selected references across the themes
Curriculum change	• research on the Literacy Hour (Fisher, 2001; Hancock and Mansfield, 2002) and the National Literacy Strategy (Diment, 2003; Galton *et al.*, 2003) • the work-related curriculum (Hillage *et al.*, 2001; Haynes and Wragg, 2002) • National Curriculum assessments (Johnson, 2002 and 2003) • a decade of change (Brown, 2001b; Bell, 2001; Davies and Brember, 2001; Stables and Wikeley, 1997)
Out-of-school influences	• experiences of ICT (Comber *et al.*, 1997; Colley and Comber, 2003a; Selwyn and Bullon, 2000) • reading at home (Pearson, 2003; Barton, 2001) • media and magazines (Forrest *et al.*, 2002; Kerr *et al.*, 2001)
Effects and outcomes	• personal and social skills in the arts (Harland *et al.*, 2002; Collins, 1992) • thinking and critical skills (Harland *et al.*, 2002; McCallum *et al.*, 2000; Osborne and Collins, 2000; Jenkins and Nelson, 2005) • the impact of specific programmes or interventions (Kinchin *et al.*, 2004; Harland *et al.*, 2005; Brown, 2001; Rickinson, 2001; Nundy, 1999)
Values education	• learning-oriented learning and basics for all (Burke and Grosvenor, 2003; Carnell, 2004; McKenzie, 2003; Fitzgerald *et al.*, 2003) • the importance of school environment and culture (Morrison, 2000; Osborn *et al.*, 2001; Halstead and Taylor, 2000).

3.5 Summary across the themes

A summary of the key findings for each of the themes has been presented above. To conclude this chapter, this section draws together the findings across the curriculum themes.

- Learners see the curriculum as relevant to **passing exams**, **getting grades** and as a **passport** to their next steps. At all ages, pupils' sense of '**academic**' relevance increases with impending assessment. Despite this, **real-life connections** are important in creating relevance for pupils and **vocational relevance** *for all* is a value espoused by pupils.
- Across the curriculum, **pupils' enthusiasm** decreases as they get older. Over the **primary phase**, their enjoyment starts to wane. At **key stage 2–3** transition pupils experience some repetition in their learning. **More intellectual rigour**

may be needed in the curriculum as key stage 2 progresses in order to engage pupils at a time when they perceive many subjects to be getting easier.

- Enjoyment and motivation across the curriculum continue to **decrease throughout key stages 3 and 4**. Year 8 depicts a dip in motivation. Year 9 indicates some recovery of motivational attitudes, associated with national assessment and making choices. However, key stage 4 reveals some improvements in pupils' enjoyment particularly of optional subjects.
- Pupils' enjoyment of the curriculum is associated with a sense of **ease**, fun, newness, progressive **accomplishment** and **appropriate challenge**. Pupils enjoy subjects and activities where teaching and learning are **active**, **participatory** and have **practical application**.
- Learners appreciate **supportive** and **collaborative** approaches, with preferences for increasing **responsibility** and autonomy as they get older. **Explaining clearly** is amongst the most consistently valued quality in a teacher. In addition, pupils appreciate teachers' wide **subject knowledge** and welcome sessions with professionals from within the field (e.g. health professionals, visitors from colleges, the workplace and so on).
- Across the themes, **variety** is espoused. Pupils enjoy a variety of teaching and learning approaches and activities. A balance and **range of assessment methods** seems desirable (e.g. formal and informal; teacher-, self- and peer-led evaluation; formative and summative). Pupils also appreciate a **variety of subjects** to be on offer, including **a balance between academic subjects and those that are more creative, practical or vocational**.
- Across the themes, '**too much writing**' and '**too many facts**' form an underlying current in pupils' views (e.g. on manageability, assessment, breadth and balance, enjoyment). They recommend **slimmer subject content**, although by this they do not necessarily imply less depth.
- The right **level of challenge** is important to pupils' engagement, enjoyment, progression and achievement. Thus, some sense of differentiated and individualised learning might be desirable.
- Pupils also value **accessibility** and equal opportunity across many aspects of the curriculum considered in this review – e.g. vocational learning *for all*, 'basics' *for all* (although not necessarily in the form of key skills), careers guidance *for all*. Beyond this though, pupils also request the opportunity for choice and again, varying degrees of differentiated and personalised learning.

- Across the curriculum, **implicit messages** permeate pupils' experiences and perceptions. Pupils ascribe importance to subjects according to their timetable allocations or assessment status. Learners internalise messages about achievement, making progress and doing well, such that there is sometimes a mismatch between their perceptions (and *labels*) and their actual achievements and abilities.
- Pupils appreciate **explicit measures or markers** in the curriculum – for example against which they can gauge their progress. However, there is a need for making such messages more overt. Pupils (particularly secondary school pupils) require **more visible messages** about the relevance of the curriculum to daily and future life. They might also benefit from **greater awareness of connections** across the curriculum (i.e. coherence) and recognising **continuity and progression** in their learning.

Finally, across the themes it is evident that factors other than those curriculum related are important in affecting pupils' opinions. For example, images of work and careers; self-concepts of ability; the school environment and culture; teaching and learning and out-of-school influences. In this regard, a number of authors have emphasised the 'complex' relationships which need to be explored surrounding pupils' experiences of teaching, learning and the curriculum (e.g. Glover and Law, 2004a and b; Jenkins and Nelson, 2005; Cleaves, 2005). Cleaves' caveat for science could be applied across the curriculum:

> *'Caution should be exercised in recommending changes in* [science education] *curricula based only on trends in students' perceptions of* [science] *in school'* (Cleaves, 2005, p.483).

With this complex array of influences and relationships in mind, section 5 discusses some of the implications raised by the findings on pupils' perspectives and experiences, in the light of current policy.

Before that, section 4 outlines some of the ongoing work in this field.

Notes

1 Individual summaries of all 314 entries in the review have been completed. These include details of the findings from each study and are unpublished.

2 Previous reports for this project have discussed findings as they have emerged over the course of the time period of the review. This report presents an overview of the key findings – illustrated with references and examples.

3 Citizenship education became a statutory element of the secondary school curriculum in September 2002. The three strands of the National Curriculum programmes of study are: knowledge and understanding about becoming an informed citizen; developing skills of enquiry and communication and developing skills of participation and responsible action (DfES, 2004). The report of the Advisory group on Education for Citizenship and the Teaching of Democracy in Schools (Advisory Group on Education and Citizenship and the Teaching of Democracy in Schools, 1998) identified three inter-related components which should form part of the citizenship curriculum: social and moral responsibility, community involvement and political literacy.

4 Studies rarely consider more than one or two of these background variables – although Harland *et al*. (2002, 2003) considered in the findings pupils' gender, age, social and economic background, attainment and engagement levels and school type.

5 Findings by age, key stage and phase of education were presented in a report to QCA in December, 2003 (Lord and Kendall, 2003, unpublished).

4 Current research

In order to identify any current or planned research in the area of pupils' perspectives on the National Curriculum, requests were sent out to relevant UK university education departments, research organisations and commissioning bodies in each year of the review. Rather than a comprehensive survey or audit of work, organisations were invited to respond so as to inform the review and help provide an up-to-date picture of the work underway in this field. Searches of the Current Educational Research in the UK (CERUK) databases were also conducted annually.

In this latest year of the review, requests were sent out to 78 UK universities/higher education institutions (identified as having education departments and possibly undertaking research in this field) and 45 research organisations/commissioning bodies. Sixteen institutions/organisations responded, highlighting at least 15 research projects currently underway. From these responses, 10 pertinent research projects were identified (i.e. those related to pupils' curriculum experiences[1]). A search was also carried out of the CERUK database, yielding three further studies not already in the review. These ongoing projects are discussed below and outlined in Table 2.

Several of the identified studies have a focus on the subject area of **science**. Researchers at the University of Leeds are undertaking an evaluation of the co-ordination of 21st Century Science, a suite of new GCSE courses for 14–16 year olds in science. The research is funded by the Nuffield Foundation, who have developed the 21st Century Science programme, along with the Science Education Group at the University of York. The evaluation will investigate **pupils' learning, teachers' and pupils' experience of the course and pupils' attitudes to science**. Sheffield Hallam University are carrying out research into UK secondary pupils' perceptions of science and engineering (funded by Research Councils UK). The project is using questionnaires and focus group interviews of key stage 3 and 4 pupils to tease out better understanding of the key issues involved in **young people's decision making when choosing further study and career options**. Also on the subject area of science, two ongoing projects at the University of York are investigating **pupils' attitudes to school science**, including at key stage 2–3 transition. To date, some findings from this research have been published and appear in the review (e.g. Braund and Driver, 2005).

At the University of Exeter, research funded by the Nuffield Foundation, the National Research and Development Centre for adult literacy and numeracy (NRDC), the Learning and Skills Development Agency (LSDA), the University of Brighton and the National Institute of Adult Continuing Education (NIACE) is investigating **formative assessment**. The research will evaluate how teachers and students can enhance their understanding and practice of formative assessment to produce new insights and evidence about the links between formative assessment practices and students' motivation and achievement in vocational education at key stage 4 and advanced level (GCSE and AVCES). Also in the area of assessment, ongoing work at the Assessment & Qualifications Alliance (AQA) is exploring students' perceptions of **computer-based assessment** methods, in terms of students' reactions to typing answers in text entry boxes in world class tests, as well as their perceptions of **computer-based problem solving**. A further area of study at AQA is that of teachers' and pupils' views on **tiering in GCSE examinations**, particularly for mathematics.

Whilst not directly focusing on the National Curriculum, it is notable that a number of current studies are gathering **pupils' perspectives on broader aspects of their school experience**. Researchers at the University of Huddersfield report an ongoing programme of research into **pupils' experience of schooling**. The University of Hertfordshire are engaged in a project on inclusion and have undertaken one-to-one interviews with deaf students to find out what they perceive regarding teaching strategies, subject preferences and support for curriculum access. Ofsted have produced relevant publications, including reports on **pupils' satisfaction with their schools** generally and a report on **Bangladeshi pupils' experience of school**. The Campaign for Learning's action research project *Learning to Learn in Schools* has also been highlighted again this year, focusing on teaching/learning styles.

Table 2 Current research

Institution and Research area	Reference or Web page
The University of Leeds	N/A
UK Secondary Pupils' Perceptions of Science and Engineering	
The University of York	www.york.ac.uk/depts/educ
• Pupils' attitudes to science and science practical work and practical science in the world of work pre- and post-transfer to secondary school – looking at learners' experiences of practical works in science lessons	

Table 2 Current research cont'd

Institution and Research area	Reference or Web page
The University of York (cont'd) • 'Would you want to talk to a scientist at a party?' students' attitudes to school science and science – project looks at learners' attitudes to school science	www.york.ac.uk/depts/educ
The University of Exeter Improving formative assessment	www.education.ex.ac.uk/ifa
Assessment & Qualifications Alliance • Teachers' and students' views on tiering in GCSE examinations • Text entry boxes in world class tests: students' reactions to typing answers on a computer • Students' perceptions of computer-based problem solving	www.aqa.org.uk
University of Hertfordshire Inclusion: what deaf pupils think	University of Hertfordshire (2002) Inclusion: what deaf pupils think London: RNID
University of Huddersfield Pupils' experience of schooling (including some views/attitudes towards the curriculum)	• Cullingford, C. (2002). *The Best Years of Their Lives? Pupils' Experiences of School*. London: RoutledgeFalmer. • Cullingford, C. (1999). *The Human Experience: The Early Years*. Aldershot: Ashgate Publishing. • Eysenck, H.J. and Gudjonsson, G.H. (1989). *The Causes and Cures of Criminality: Perspectives on Individual Differences*. New York, NY: Plenum Press. • Cullingford, C. (2000). *Prejudice: From Individual Identity to Nationalism in Young People*. London: Kogan Page. • Cullingford, C. (1991). *The Inner World of the School: Children's Ideas about Schools*. London: Cassell.
Campaign for Learning	Learning to Learn in School Learning to Learn for Life. 2005. Network Educational Press www.campaignforlearning.org.uk
Ofsted • Pupils' satisfaction with their schools • Bangladeshi students' experience of school	http://www.ofsted.gov.uk/publications/index.cfm?fuseaction=pubs.summary&id=3944 http://www.ofsted.gov.uk/publications/index.cfm?fuseaction=pubs.summary&id=3635

Notes

1 Note that some responses indicated research underway in the broader field of young people's experiences of 'school'. Other responses highlighted curriculum-based research that did not focus on pupils' views. These have not been reported here.

5 Implications and conclusion

5.1 The review

The 314 sources contributing to this review have provided a rich and varied data set. The results are dispersed across a wide range of themes and foci and derived from various aims, research questions and contexts. However, some areas have provided a sufficient body of research to allow cumulative and corroborated results to be identified. In addition, several areas have raised implications for current policy or practice, or have provoked the question of the need for further research.

We conclude by highlighting some of these issues to consider, in the light of curriculum policy and developments, including: Assessment for Learning, enjoyment and achievement, the personalised learning agenda, the 14–19 debate, e-learning, and the site of learning). Finally, we suggest areas where the review might be developed beyond its current scope.

5.2 Implications for curriculum policy, practice and research

5.2.1 Assessment for Learning and making progress

> *Assessment for Learning is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there.* (Assessment Reform Group, 2002)

Assessment for learning: time to embed. Across a number of themes, subject areas and age ranges, the findings from the pupils' perspective highlight implications for the development of Assessment for Learning – in particular that it might take time to embed within teaching and learning. Research has shown that the initial change from a summative to a formative schema can be '*unsettling*' for pupils (e.g. Markwick *et al*., 2003). Other activities associated with Assessment for Learning, such as peer evaluation, can also be demanding for pupils. Investigating peer evaluation in dance, for example, Cassady *et al*. (2004) found negative

impacts on pupils' self-esteem and group dynamics. Pupils preferred self-evaluation on video, although working consistently with the same group helped to build trust and ease anxieties regarding group evaluation.

Of particular note is that pupils' strategies for recognising their own learning and progress reveal a reliance on external cues (e.g. examinations and reports) – seen to provide 'concrete' indications of attainment. Curriculum developers and teachers might consider the balance between ongoing assessment and summative markers to enable pupils to gauge their progress.

Making continuity and progression more visible. Pupils' awareness of continuity and progression in the curriculum and how their learning build-on appears somewhat limited. However, making continuity and progression more visible within their curriculum experiences might be important for young people's recognition of their progress. This might be emphasised via Assessment for Learning through setting goals and '*how best to get there*'.

Aiding primary–secondary transition. Research and development at primary–secondary transfer would recommend attention to teaching and learning strategies which motivate pupils (e.g. Galton *et al.*, 2003) and which help pupils to continue to make progress particularly at key stage 2–3 transition.

> *One way of reinforcing continuity … is to provide curriculum experiences that begin in the primary classroom and are continued, extended and progressed after pupils transfer to their secondary schools. We refer to this work as 'bridging'* (Braund and Driver, 2005, p.79).

Further research. Research findings across the key stages suggest that further exploration might be due in terms of: pupils' experiences of assessment; stress and transitions and the potential of formative assessment for enhancing pupil progress and engagement in their learning.

5.2.2 Enjoyment and achievement

> *… for every primary school to combine excellence in teaching with enjoyment of learning … primary education is about children experiencing the joy of discovery, solving problems, being creative in writing, art, music, developing their selfconfidence as learners and maturing socially and emotionally ...*
> (DfES, 2003a) (www.standards.dfes.gov.uk)

… for all children and young people to enjoy and achieve. (*Every Child Matters*, DfES, 2005a)

Greater attention to real-life application and 'fun'. A number of recent studies reveal a mismatch between pupils' preferred learning styles and activities and what they report actually experiencing in the classroom. The review highlights aspects of the curriculum that might be developed or changed in order to better accommodate pupils' preferences. These include: increased relevance to daily life and work; greater attention to practical activity; more opportunity for responsibility, autonomy and personal choice in learning and that learning should be 'fun'. Attention to both the mode of delivery and the content of subjects should be considered.

Achievement and learning. Pupils have noted an emphasis on performance-oriented learning, highlighting a narrowed view of relevance (utilitarian and academic), stress and anxiety and decreased enjoyment, breadth and balance alongside 'high stakes assessment'. Although assessment might provide points of motivation, pupils have also put forward ideals about '*schooling for fulfilment*' and learning-oriented learning (Burke and Grosvenor, 2003; Carnell, 2004). Every Child Matters aims for all children and young people to 'enjoy and achieve' (DfES, 2005a), through personal and social development, enjoying recreation and through stretching national standards.

Further research on manageability, breadth and balance. In the primary phase, there was comparatively little by way of volume of research on the curriculum design concepts of breadth and balance and manageability. Given the association between enjoyment and manageability in the findings and the changing balance within the curriculum through aspects such as the literacy hour, further research into these topics might be considered – in particular, their association with pupils' achievement.

5.2.3 Personalised learning

A key finding of the review is that different degrees of support, differentiation and individualised learning might be required at different ages. These issues resonate with the current personalised learning agenda – referring to both curriculum content and learning approaches. However, pupils' views indicate that different levels of personalisation are required in different arenas. In target setting for example,

pupils have requested highly individualised targets (Dagley, 2004a and b); whilst 'learning about a trade' is suggested as something that *all* pupils should cover irrespective of post-16 destination (e.g. Moor *et al*., 2004). As the DfES Standards Site explains, personalised learning has elements of curriculum *entitlement* and elements of choice:

> *A pupil's learning journey involves a combination of entitlement and choice that delivers a breadth of study and personal relevance and for young people at age 14 and onwards there is increasing choice within the education system.* (www.standards.dfes.gov.uk/personalisedlearning)

At 14 and beyond, personalised learning entails a guaranteed core curriculum; enrichment and enquiry; increased choice as pupils progress through their school career; support and information to make choices and flexibility leading to relevant qualifications for all. This review raises implications from the pupil perspective for the above arenas, in terms of breadth, balance, choice and variety – the latter a popular request from pupils in their learning.

Breadth, choice and variety. Pupils consistently request a breadth and range of subjects and courses on offer. However, to what extent this is about breadth of coverage or choice is not always clear. In this regard, Burke and Grosvenor (2003) offer some sense of young people's underlying 'educational values'. Although these children wished for more personal choice and some specialisation, their responses also revealed that '*they regard as more important the need to build a foundation which is characterised by a holistic emphasis in teaching and learning*' (p.59). Entitlement to '*basics for all*' was put forward by the pupils.

The post-16 phase of the Northern Ireland study provides a further source of reflection here. When looking back at their post-primary studies, the 100 young people who were interviewed at the age of 18 expressed the importance of: 'variety' within the curriculum at key stage 3 (i.e. to include a broad range of skills, practical learning and real-life relevance) and 'choice' at key stage 4 (Moor *et al*., 2004).

Improving balance for all pupils. Several authors have argued that a requirement for subject curricula to be balanced might not be appropriate for all pupils. Given pupils' different abilities, levels of engagement, varying preferences by gender and so on, the question is raised: 'balance for whom?'

In the Northern Ireland Study, for example, low-engaged pupils expressed concern about the over-representation of academic subjects and this seemed to contribute to their disengagement (Harland *et al*., 2002). And in PE and science, the issue of balance for gender equity or 'unbalance' to suit gender preferences is highlighted (e.g. Woodhouse, 1996; Milosevic, 1996; Osborne and Collins, 2000; Jenkins and Nelson, 2005). Is it possible to provide for the breadth of differing preferences expressed by boys and girls in PE and science? As pointed out by Fairclough (2003) – '*the actual application of breadth and balance becomes constricted when individual schools contend with limited facilities, availability and expertise of staff and timetable allocation*' (pp.13–14). And in science researchers note the '*tension*' between '*constructing a science curriculum differentiated by student interest' with 'a commitment to gender equity and the provision of a broad and balanced science education for all*' (Jenkins and Nelson, 2005, p.54).

On the whole, the areas that pupils highlight for greater curriculum coverage reflect those which they perceive to be useful for daily life, work and for preparation for future study. A greater emphasis on relevant learning opportunities both to study, life and work *and* to the particular pupils concerned might help address issues of balance, as well as 'personalised learning' for pupils.

5.2.4 14–19 education and skills

> *… tailored to the talents and aspirations of individual young people, with greater flexibility about what and where to study and when to take qualifications.* (DfES 2005c, p.3)

Coherence, continuity and progression. Recent developments in the areas of personalised learning and the 14–19 debate (e.g. www.dfes.gov.uk/14-19) propose greater personal choice and enhanced opportunities for progression through different learning pathways. Thus, more research into the coherence, continuity and progression of the learners' experience might be opportune. Areas for research might include:

- opportunities for personal choice
- the range of courses on offer and what this means for the learning experience as a coherent 'whole'
- the links made between subject areas and the impact of that on learners' progress

- and learners' progression throughout key stage 3 and the 14–19 curriculum and its associated assessment arrangements.

Whole curriculum learning, content and skills. Accounts of *whole curriculum* learning are not so prevalent in pupils' discourse, as accounts of subject-compartmented learning. However, whilst research from earlier in the review (e.g. pre-2000) suggested that pupils focused on content rather than skills when talking about their curriculum experiences, findings regarding pupils' views on skills have emerged more recently. Whilst this may be due to different research questions and contexts, it might also indicate somewhat of a sea change in pupils' experiences of the curriculum and in particular a greater emphasis on key skills, vocational learning and practical application. It would be interesting for research to explore whether these aspects become more frequent in the pupil voice as they become embedded in practice particularly within 14–19.

5.2.5 ICT and e-learning

> *… as a learner you should have: … the chance to develop the skills you need for participating fully in a technology-rich society. Along with listening and reading, you will spend more time learning in groups, working with others, being creative, learning through challenging, game-like activities and materials that adjust to the level and pace appropriate to you and with clear personal goals that you help to set …* (DfES, 2005b, p.7)

Harnessing pupils' enjoyment and motivation associated with ICT. Given the added dimension that ICT brings to pupils' learning (including to their enjoyment and understanding), there are important implications for policy regarding ICT. There is a strong case for harnessing the high levels of pupil enjoyment and motivation with regard to ICT that are evident at a young age and particularly before girls' confidence in computer usage becomes an issue in the secondary age range (the research indicated that girls' confidence in ICT usage declined in secondary school). Interestingly, ICT was amongst the less frequently researched subjects areas at primary school and given this important arena there may be a pressing need for further research in this area.

5.2.6 Site of learning

Flexibility in the site of learning has come to the fore in the personalised learning agenda, 14–19 developments, e-learning and through other schemes such as Excellence in Cities. Research has highlighted the potential benefits to pupils in terms of perceived relevance and making progress when connections are made within and across their learning. Given these greater flexibilities in the location of their learning, attention might be given to encouraging connections between classroom and informal or other learning experiences. The 'permeability' of the boundaries between formal and informal learning might be explored from the point of view of curriculum planning and teaching/learning approach: '*learning can be thought of as a continuum of formal and informal practices*' (Kent and Facer, 2004).

5.2.7 Effects and outcomes of education

At present, the effects and outcomes of programmes and initiatives on pupils' personal, social and emotional learning and capabilities are being researched. The effects and outcomes of everyday curriculum learning would appear less frequently researched. A number of current and recent national initiatives, such as Creative Partnerships (www.creative-partnerships.com) (along with QCA's Creativity: Find it Promote it) and Excellence in Cities (www.standards.dfes.gov.uk/sie/eic) aim to embed within teaching and learning and as they do so, the effects and outcomes on pupils' learning might warrant further research.

5.3 The scope of the review: a concluding comment

This review has focused on pupils' perspectives and experiences of the curriculum and assessment, as found in the research literature from 1989 to date. Over this time period, there have been developments and changes in the curriculum and associated policy contexts. Likewise, different foci have emerged in the research, including research into assessment and qualifications, citizenship, the literacy hour, research '*ten years on*' and so on. In response, the review itself has taken account of the emerging themes and findings in the research – the methodological and substantive typologies by which the research has been categorised have been revised and developed as necessary.

Over the course of the review, the particular focus that research takes on the *pupil* – as learner, student, individual, participant and so on – has also changed and developed. As well as exploring their perspectives, *involving* pupils in research has also come to the fore, through consultation, action research, in-school evaluation, school councils and so on. The review suggests that pupil involvement in negotiating their curriculum has positive spin-offs for pupils, teachers and schools. Currently, this aspect of learning is mainly reported as a result of specific programmes or through action research. However, the *pupil voice* is now making a contribution across education and other children's services (including via Every Child Matters – making a positive contribution and engaging in decision making through for example, school councils (DfES, 2005a).

Any future review might be developed to focus on the *pupil voice* – not only *what* they say, but the *process* by which they are involved, *who* is involved and the *impact* of that involvement on the children and young people, as well as perhaps on schools and elsewhere. As a number of researchers have recently highlighted, it is not only the curriculum that affects young people's views, but *how* they are involved in their teaching, learning, personal, social and other development – a complex array which needs constant unravelling.

References

References of the 23 items updating the review 05–06

Blaikie, F., Schönau, D. and Steers, J. (2004) 'Preparing for portfolio assessment in art and design: a study of the opinions and experiences of exiting secondary school students in Canada, England and The Netherlands', *Journal of Art and Design Education*, **23**, 3, 302–15.

Braund, M. and Driver, M. (2005). 'Pupils' perceptions of practical science in primary and secondary school: implications for improving progression and continuity of learning', *Educational Research*, **47**, 1, 77–91.

Cassady, H., Clarke, G. and Latham, A. (2004). 'Experiencing evaluation: a case study of girls' dance', *Physical Education and Sport Pedagogy*, **9**, 1, 23–36.

Cleaves, A. (2005). 'The formation of science choices in secondary school', *International Journal of Science Education*, **27**, 4, 471–86.

Dagley, V. (2004a). 'Pupils' perceptions of the efficacy of target setting and how it can be made more effective', *Pastoral Care in Education*, **22**, 2, 14–18.

Dagley, V. (2004b). 'Research with the pupils "in the middle" at Key Stage 3: "levels just show how average you are"', *Forum*, **46**, 2, 77–82.

Davies, P., Durbin, C., Clarke, J. and Dale, J. (2004). 'Developing students' conceptions of quality in geography', *The Curriculum Journal*, **15**, 1, 19–34.

Francis, B., Hutchings, M. and Read, B. (2004). *Science in Girls' Schools: Factors that Contribute to Girls' Engagement and Attainment* (Report on the Research Commissioned by the Association for Maintained Girls' Schools). London: Institute for Policy Studies in Education.

Glover, D. and Law, S. (2004). 'Creating the right learning environment: the application of models of culture to student perceptions of teaching and learning in eleven secondary schools', *School Effectiveness and School Improvement*, **15**, 3-4, 313–36.

Hall, I. and Higgins, S. (2005). 'Primary school students' perceptions of interactive whiteboards', *Journal of Computer Assisted Learning*, **21**, 102–17.

Hamilton, L. and Brown, J. (2005). '"Judgement day is coming!": young people and the examination process in Scotland', *Improving Schools*, **8**, 1, 47–57.

Hopwood, N. (2005). 'Year 9 students' conceptions of geography', *Teaching Geography*, **30**, 2, 91–3.

Jenkins, E.W. and Nelson, N.W. (2005). 'Important but not for me: students' attitudes towards secondary school science in England', *Research in Science and Technological Education*, **23**, 1, 41–57.

Johnson, M. and Green, S. (2004). 'On-line assessment: the impact of mode on students' strategies, perceptions and behaviours.' Paper presented at the British Educational Research Association Annual Conference, University of Manchester, 16–18 September.

Kent, N. and Facer, K. (2004). 'Different worlds? A comparison of young people's home and school ICT use', *Journal of Computer Assisted Learning*, **20**, 6, 440–55.

Maitles, H. and Cowan, P. (2004). 'One country, many cultures!: Does Holocaust education have an impact on pupils' citizenship values and attitudes?' Paper presented at the Scottish Educational Research Association Conference, Perth, 25–27 November.

Maitles, H. and Gilchrist, I. (2004). 'We're not citizens in waiting, we're citizens now!: a case study of a democratic approach to learning in an RME secondary class in the West of Scotland.' Paper presented at the European Conference on Educational Research, University of Crete, 22–25 September.

Murray, I. and Reiss, M. (2005). 'The student review of the science curriculum', *School Science Review*, **87**, 318, 83–92.

Qualifications and Curriculum Authority (2004a). Post-14 Mathematics: Student Focus Groups 2004. Internal Report. Unpublished report.

Qualifications and Curriculum Authority (2004b). Pupils' Perspectives on Science 2003/4. Internal report. Unpublished report.

Remedios, R., Ritchie, K. and Lieberman, D. (2005). 'I used to like it but now I don't: the effect of the transfer test in Northern Ireland on pupils' intrinsic motivation', *British Journal of Educational Psychology*, **75**, 435–52.

Shenton, A. and Dixon, P. (2004). 'Information needs issues emerging from school assignments', *Education Libraries Journal*, **47**, 2, 21–9.

Smith, E. and Gorard, S. (2005). '"They don't give us our marks": the role of formative feedback in student progress', *Assessment in Education*, **12**, 1, 21–38.

Williams, M., Burden, R., Poulet, G. and Maun, I. (2004). 'Learners' perceptions of their successes and failures in foreign language learning', *Language Learning Journal*, **30**, 19–29.

Additional references (not summarised for the review)

Advisory Group on Education and Citizenship and the Teaching of Democracy in Schools (1998). *Education for Citizenship and the Teaching of Democracy in Schools* (Crick Report). London: QCA.

Assessment and Qualifications Alliance (2001). Teachers' and Students' Views on Tiering in GCSE Examinations. Unpublished extract from the draft report on the JCGQ-funded Tiering project, p.104–17.

Assessment Reform Group (2002). *Assessment for Learning: 10 Principles* [online]. Avaialable: http:///arg.educ.cam.ac.uk/CIE3.pdf [23 October 2006].

Flutter, J. and Rudduck, J. (2004). *Consulting Pupils: What's in it for Schools?* London: RoutledgeFalmer.

Department for Education and Skills (2003a). *Excellence and Enjoyment: a Strategy for Primary Schools* [online]. Available: http://www.standards.dfes.gov.uk [18 October 2006].

Department for Education and Skills (2003c). *What is the Key Stage 3 National Strategy?* [online]. Available: http://www.standards.dfes.gov.uk/keystage3 [9 March 2004].

Department for Education and Skills (2004). *Citizenship: Curriculum* [online]. Available: http://www.dfes.gov.uk/citizenship/section.cfm?sectionId=5&hierachy=1.5 [14 February, 2005].

Department for Education and Skills (2005a). *Every Child Matters. Outcomes Framework* [online]. Available: http://www.suffolk.gov.uk/NR/rdonlyres/A3C10E74-0B56-450D-BF0A-962E508D02A1/0/CYPOutcomesFramework.pdf [20 June, 2006].

Department for Education and Skills (2005). *Harnessing Technology: Transforming Learning and Children's Services*. Summary [online]. Available: www.dfes.gov.uk/publications/e-strategy/ [22 June, 2006].

Department for Education and Skills (2005c). *14-19 Education and Skills Summary* [online]. Available: http://www.dfes.gov.uk/14-19/documents/14-19whitepapersum.pdf, [22 June, 2006].

Fiddes, D.J., Korabinski, A.A., McGuire, G.R., Youngson, M. A. and McMillan, D. (2002). 'Does the mode of delivery affect mathematics examination results?' *Association for Learning Technology Journal*, **10**, 1, 60–9.

Harland, J., Moor, H., Lord, P. and Styles, B. (2005). Northern Ireland Curriculum Cohort Study: the Overview. Unpublished report.

Klein, R. (2003). *We Want Our Say: Children as Active Participants in Their Education*. Stoke on Trent: Trentham Books.

Lines, A., McCrone, T., Schagen, S. and Benton, T. (2005). *Year 9 Career Choices – Underpinning Research for Development of a Career Portal for the 11–19 Age Group* (Research Summary) [online]. Available: http://www.nfer.ac.uk/research-areas/pims-data/summaries/year-9-career-choices-underpinning-research-for-development-of-a-career-portal-for-the-11-19-age-group.cfm [1 May, 2006]. Full report on 'Factors influencing Year 9 choices' (Engineering and Technology Board) [online]. Available at: http://www.etechb.co.uk/uploads/FR%20Factors%20Influencing%20Year%209%20Career%20Choices.pdf [1 May, 2006].

Lord, P. (2001). *Pupils' Experiences and Perspectives of the National Curriculum: Updating the Research Review* (Research Report) [online]. Available: http://www.qca.org.uk/254_1956.html [1 May, 2006].

Lord, P. (2002). *Pupils' Experiences and Perspectives of the National Curriculum: Updating the Research Review*. February 2002 [online]. Available: http://www.qca.org.uk/254_1956.html [1 May, 2006].

Lord, P. (2003). *Pupils' Experiences and Perspectives of the National Curriculum: Updating the Research Review 2002-2003*. Research Report [online]. Available: http://www.qca.org.uk/254_1956.html [1 May, 2006].

Lord, P. (2005). *International Review of Curriculum and Assessment Frameworks. Thematic Probe – Learner Motivation 3-19: an International Perspective. Executive Summary* [online]. Available: http://www.inca.org.uk/pdf/LMP_Executive_summary_final_version.pdf [27 November, 2005].

Lord, P. and Harland, J. (2000). *Pupils' Experiences and Perspectives of the National Curriculum: Research Review* [online]. Available: http://www.qca.org.uk/254_1956.html [7 January, 2005].

Lord, P. and Johnson, A. (2004). *Pupils' Experiences and Perspectives of the National Curriculum and Assessment: Updating the Research Review 2003-2004*. Available: http://www.qca.org.uk/254_1956.html [1 May, 2006].

Lord, P. and Johnson, A. (2005). *Pupils' Experiences and Perspectives of the National Curriculum and Assessment: Research Report*. Available: http://www.qca.org.uk/254_1956.html [1 May, 2006].

Lord, P. and Kendall, S. (2003). Pupils' Experiences and Perspectives of the National Curriculum by Phase: Research Report Conducted for the Qualifications and Curriculum Authority. Unpublished report.

Lord, P. and O'Donnell, S. with Brown, R. and Grayson, H. (2005). *International Review of Curriculum and Assessment Frameworks. Thematic Probe – Learner Motivation 3-19: an International Perspective*. Available online at: http://www.inca.org.uk/thematic_probes.html [27 November 2005].

Moon, S., Lilley, R., Morgan, S., Gray, S. and Krechowiecka, I. (2004) A systematic review of recent research into the impact of careers education and guidance on transitions from Key Stage 3 to Key Stage 4 (1988–2003). In: *Research Evidence in Education Library*. London: EPPI-Centre, Social Science Research Unit, Institute of Education.

Qualifications and Curriculum Authority (2005). A Review of GCE and GCSE Coursework Arrangements. Internal report. Unpublished report.

Richardson, M., Baird, J.A., Ridgway, J., Ripley, M., Shorrocks-Taylor, D. and Swan, M. (2002). 'Challenging minds? Students' perceptions of computer-based World Class Tests of problem-solving', *Computers and Human Behaviour*, **18**, 6, 633–49.

Royal-Dawson, L. and Ebner, K. (2003). Text entry Boxed in World Class Tests: Student's Reactions to Typing Answers on a Computer. AQA Internal Report. Unpublished report.

Rudduck, J. and Flutter, J. (2000). 'Pupil participation and pupil perspective: "carving a new order of experience"', *Cambridge Journal of Education*, **30**, 1, 75–89.

Sainsbury, M. (2004). 'Children's attitudes to reading', *Literacy Today*, **38**, 16–17.

Smith D, Lilley R, Marris L, Krechowiecka I (2005) A systematic review of research (1988–2004) into the impact of career education and guidance during Key Stage 4 on young people's transitions into post-16 opportunities. In: *Research Evidence in Education Library*. London: EPPI-Centre, Social Science Research Unit, Institute of Education.

Twine, C., Robbé, I.J., Forrest, S. and Davies, S. (2005). 'A needs assessment in South Wales schools for a novel medical student-led sex education programme', *Sex Education*, **5**, 2, 137–152.

Wallace, C. (2005). 'Conversations around the literacy hour in a multilingual London primary school', *Language and Education*, **19**, 4, 322–338.

Full list of references in the review (summarised for the review)

Adey, K. and Biddulph, M. (2001). 'The influence of pupil perceptions on subject choice at 14+ in geography and history', *Educational Studies*, **27**, 4, 439–50.

Ahier, J., Chaplain, R., Linfield, R., Moore, R. and Williams, J. (2000). 'School work experience: young people and the labour market', *Journal of Education and Work*, **13**, 3, 273–88.

Andrews, R. (2001). 'Citizenship education in Wales: community, culture and the curriculum Cymreig', *Welsh Journal of Education*, **10**, 1, 21–31.

Angier, C. and Povey, H. (1999). 'One teacher and a class of school students: their perception of the culture of their mathematics classroom and its construction', *Educational Review,* **51**, 2, 147–60.

Archer, J. and Macrae, M. (1991). 'Gender-perceptions of school subjects among 10-11 year-olds', *British Journal of Educational Psychology*, **61**, 1, 99–103.

Armstrong, D. and Davies, P. (1995). 'The transition from school to adulthood: aspirations and careers advice for young adults with learning and adjustment difficulties', *British Journal of Special Education*, **22**, 2, 70–5.

Atkinson, P. (2003). 'Assessment 5–14: What do pupils and parents think?' *Spotlight*, **87** [online]. Available: http://www.scre.ac.uk/pdf/spotlight/spotlight87.pdf [11 February, 2005].

Attwood, G., Croll, P. and Hamilton, J. (2003). 'Re-engaging with education', *Research Papers in Education*, **18**, 1, 75–95.

Balding, J. (1996). 'Starting at home: bringing environment into the curriculum', *Education and Health*, **13**, 4, 52–6.

Barton, A. (2002). 'Teaching modern foreign languages to single-sex classes', *Language Learning Journal*, **25**, 8–14.

Barton, K.C. (2001). ''You'd be wanting to know about the past': social contexts of children's historical understanding in Northern Ireland and the USA', *Comparative Education*, **37**, 1, 89–106.

Battersby, J. (1999). 'Does environmental education have 'street credibility' and the potential to reduce pupil disaffection within and beyond their school curriculum?' *Cambridge Journal of Education*, **29**, 3, 447–59.

Bell, J.F. (2001). 'Patterns of subject uptake and examination entry 1984–1997', *Educational Studies*, **27**, 2, 201–19.

Bentley, D. and Drobinski, S. (1995). 'Girls, learning and science in the framework of the National Curriculum', *The Curriculum Journal*, **6**, 1, 79–100.

Beresford, J. (1997). 'Ask the children', *Reading*, **31**, 1, 17–18.

Berry, J. and Picker, S.H. (2000). 'Your pupils' images of mathematicians and mathematics', *Mathematics in Schools*, **29**, 2, 24–6.

Biddulph, M. and Adey, K. (2003). 'Perceptions v. reality: pupils' experiences of learning in history and geography at key stage 4', *The Curriculum Journal*, **14**, 3, 291–303.

Biddulph, M. and Adey, K. (2004). 'Pupil perceptions of effective teaching and subject relevance at key stage 3', *Research in Education*, **71**, 1–8.

Birtwistle, G.E. and Brodie, D.A. (1991). 'Children's attitudes towards activity and perceptions of physical education', *Health Education Research*, **6**, 4, 465–78.

Bishop, K., Bullock, K., Martin, S. and Thompson, J. (1999). 'Users' perceptions of GCSE', *Educational Research*, **41**, 1, 35–49.

Bishop, K.N., Bullock, K., Martin, S. and Thompson, J.J. (1997). 'Students' perceptions of coursework in the GCSE: the effects of gender and levels of attainment', *Educational Studies*, **23**, 2, 295–309.

Black, P., Brown, M., Simon, S. and Blondel, E. (1996). 'Progression in learning – issues and evidence in mathematics and science.' In: Hughes, M. (Ed) *Teaching and Learning in Changing Times.* Oxford: Blackwell.

Blaikie, F., Schönau, D. and Steers, J. (2004) 'Preparing for portfolio assessment in art and design: a study of the opinions and experiences of exiting secondary school students in Canada, England and The Netherlands', *Journal of Art and Design Education*, **23**, 3, 302–15.

Blake, D. (1994). 'Children's attitudes to school at key stages 1 and 2', *Primary Teaching Studies*, **8**, 3, 50–8.

Bland, P. (1993). 'GCSE mathematics coursework: some pupils' views', *Mathematics Education Review*, **2**, 30–2.

Blatchford, P. (1996). 'Pupils' views on school work and school from 7 to 16 years', *Research Papers in Education*, **11**, 3, 263–88.

Blatchford, P. (1997). 'Pupils' self assessments of academic attainment at 7, 11 and 16 years: effects of sex and ethnic group', *British Journal of Educational Psychology*, **67**, 2, 169–84.

Bleach, K. (1997). 'Where did we go wrong?' *Times Educ. Suppl*, **4207**, 14 February, 14.

Boaler, J. (1997). *Experiencing School Mathematics: Teaching Styles, Sex and Setting*. Buckingham: Open University Press.

Boaler, J., William, D. and Brown, M. (2000). 'Students' experiences of ability grouping – disaffection, polarisation and the construction of failure', *British Education Research Journal,* **26,** 5, 631–48.

Bonnett, M. and Williams, J. (1998). 'Environmental education and primary children's attitudes towards nature and the environment', *Cambridge Journal of Education*, **28**, 2, 159–74.

Bramham, P. (2003). 'Boys, masculinities and PE', *Sport, Education and Society*, **8**, 1, 57–71.

Braund, M. and Driver, M. (2002). 'Moving to the big school: what do pupils think about science practical work pre- and post-transfer?' Paper presented at the Annual Conference of the British Educational Research Association, University of Exeter, Exeter, 12–14 September.

Braund, M. and Driver, M. (2005). 'Pupils' perceptions of practical science in primary and secondary school: implications for improving progression and continuity of learning', *Educational Research*, **47**, 1, 77–91.

Bray, D. (2000). 'An examination of GCSE music uptake rates', *British Journal of Music Education*, **17**, 1, 79–89.

Bristow, S. and Desforges, C. (1995). 'Working practices and children's application of subject knowledge in the primary school', *Research Papers in Education*, **10**, 2, 273–93.

British Telecom (2003). *BT Citizenship Research Summary 2003* [online]. Available: http://www.talkingteaching.co.uk/resources/citizenship.htm [11 February, 2005].

Brown, C. (2001a). 'Where are they now? Following up a successful primary technology project', *Journal of Design and Technology Education*, **6**, 2, 150–4.

Brown, C.A. (2001b). 'Can legislation reduce gender differences in subject choice? A survey of GCSE and A level entries between 1970 and 1995', *Educational Studies*, **27**, 2, 173–86.

Brown, M. and Simon, S. (1996). *Primary Science and Mathematics Tasks: Pupils' Perceptions and Performance.* Swindon: Economic and Social Research Council.

Burke, C. and Grosvenor, I. (2003). *The School I'd Like. Children and Young People's Reflections on an Education for the 21st Century*. London: Routledge-Falmer.

Burke, D. (2003). 'Death and the Holocaust: the challenge to learners and the need for support', *Journal of Beliefs and Values*, **24**, 1, 53–65.

Buston, K., Wight, D. and Hart, G. (2002). 'Inside the sex education classroom: the importance of context in engaging pupils', *Culture, Health and Sexuality*, **4**, 3, 317–35.

Butterfield, S. (1993). *Pupils' Perceptions of National Assessment: Implications for Outcomes*. London: Nuffield Foundation.

Carnell, E. (2004). *'It's Like Mixing Colours'. How Young People View Their Learning Within the Context of the Key Stage 3 National Strategy.* London: The Association of Teachers and Lecturers.

Carroll, B. and Loumidis, J. (2001). 'Children's perceived competence and enjoyment in physical education and physical activity outside school', *European Physical Education Review*, **7**, 1, 24–43.

Cassady, H., Clarke, G. and Latham, A. (2004). 'Experiencing evaluation: a case study of girls' dance', *Physical Education and Sport Pedagogy*, **9**, 1, 23–36.

Catling, S. (2001). 'English primary schoolchildren's definitions of geography', *International Research in Geographical and Environmental Education*, **10**, 4, 363–78.

Chamberlin, R. (2003). 'Citizenship? Only if you haven't got a life: secondary school pupils' views of citizenship education', *Westminster Studies in Education*, **26**, 2, 87–98.

Chaplain, R. and Gray, J. (2000). 'Young people's perceptions of themselves and their futures: do education business partnerships make a difference?' *Journal of Vocational Education and Training*, **52**, 3, 349–71.

Chaplain, R.P. (2000). 'Beyond exam results? Differences in the social and psychological perceptions of young males and females at school', *Educational Studies*, **26**, 2, 177–90.

Clark, A. and Trafford, J. (1995). 'Boys into modern languages: an investigation of the discrepancy in attitudes and performance between boys and girls in modern languages', *Gender and Education*, **7**, 3, 315–25.

Cleaves, A. (2005). 'The formation of science choices in secondary school', *International Journal of Science Education*, **27**, 4, 471–86.

Cockburn, C. (2001). 'Year 9 girls and physical education: a survey of pupil perception', *Bulletin of Physical Education*, **37**, 1, 5–24.

Cole, C. and Newson, G. (1996). 'Primary children's views on using calculators in school', *Mathematics Education Review*, **7**, 42–9.

Cole, P. (2000). 'Drugs education at the transition from primary to secondary school: the pupils' views', *Educational Review*, **52**, 1, 55–63.

Coleman, E. (1995). 'Health-related knowledge: where does it come from?' *Journal of Biological Education*, **29**, 2, 139–46.

Colley, A. and Comber, C. (2003a). 'School subject preferences: age and gender differences revisited', *Educational Studies*, **29**, 1, 59–67.

Colley, A. and Comber, C. (2003b). 'Age and gender differences in computer use and attitudes among secondary students: what has changed?' *Educational Research*, **45**, 2, 155–65.

Colley, A., Comber, C. and Hargreaves, D.J. (1994a). 'Gender effects in school subject preferences: a research note', *Educational Studies*, **20**, 1, 13–18.

Colley, A., Comber, C. and Hargreaves, D.J. (1994b). 'School subject preferences of pupils in single sex and co-educational secondary schools', *Educational Studies*, **20**, 3, 379–85.

Colley, A., Comber, C. and Hargreaves, D. (1997). 'IT and music education: what happens to boys and girls in coeducational and single sex schools?' *British Journal of Music Education*, **14**, 2, 119–27.

Collins, J. (1992). 'Drama in the English classroom: could do better?' *Drama and Dance*, Winter, 10–14.

Comber, C., Colley, A., Hargreaves, D.J. and Dorn, L. (1997). 'The effects of age, gender and computer experience upon computer attitudes', *Educational Research*, **39**, 2, 123–33.

Comber, C., Hargreaves, D.J. and Colley, A. (1993). 'Girls, boys and technology in music education', *British Journal of Music Education*, **10**, 2, 123–34.

Cooper, B. and Dunne, M. (1998). 'Anyone for tennis? Social class differences in children's responses to National Curriculum mathematics testing', *Sociological Review*, **46**, 1, 115–48.

Cooper, J. (1995). 'Why are girls under-represented in standard grade physical education in Scottish schools?' *Scottish Journal of Physical Education*, **23**, 2, 28–38.

Cooper, P. and McIntyre, D. (1996). 'The importance of power-sharing in classroom learning.' In: Hughes, M. (Ed) *Teaching and Learning in Changing Times.* Oxford: Blackwell.

Dagley, V. (2004a). 'Pupils' perceptions of the efficacy of target setting and how it can be made more effective', *Pastoral Care in Education*, **22**, 2, 14–18.

Dagley, V. (2004b). 'Research with the pupils 'in the middle' at Key Stage 3: 'levels just show how average you are'', *Forum*, **46**, 2, 77–82.

Davies, B. (2004). 'The gender gap in modern languages: a comparison of attitude and performance in year 7 and year 10', *Language Learning Journal*, **29**, 53–8.

Davies, J. and Brember, I. (1993). 'Comics or stories? Differences in the reading attitudes and habits of girls and boys in Years 2, 4 and 6', *Gender and Education*, **5**, 3, 305–20.

Davies, J. and Brember, I. (1994a). 'Attitudes of Year 2 and Year 6 children to school and school activities', *Curriculum,* **15**, 2*,* 86–95.

Davies, J. and Brember, I. (1994b). 'Attitudes to school and the curriculum in Year 2 and Year 4: changes over two years', *Educational Review*, **46**, 3, 247–58.

Davies, J. and Brember, I. (1995). 'Stories in the kitchen: reading attitudes and habits of Year 2, 4 and 6 children', *Educational Research*, **37**, 3, 305–13.

Davies, J. and Brember, I. (1997). 'Did the SATs lower Year 2 children's self-esteem? A four-year cross-sectional study', *Research in Education*, **57**, 1–11.

Davies, J. and Brember, I. (1999). 'Reading and mathematics attainments and self-esteem in Years 2 and 6 – an eight-year cross-sectional study', *Educational Studies*, **25**, 2, 145–57.

Davies, J. and Brember, I. (2001). 'A decade of change? Monitoring reading and mathematical attainment in Year 6 over the first ten years of the Education Reform Act', *Research in Education*, **65**, 31–40.

Davies, P., Durbin, C., Clarke, J. and Dale, J. (2004). 'Developing students' conceptions of quality in geography', *The Curriculum Journal*, **15**, 1, 19–34.

Demetriou, H., Goalen, P. and Rudduck, J. (2000). 'Academic performance, transfer, transition and friendship: listening to the student voice' (Special Issue: School Transitions and Transfers), *International Journal of Educational Research*, **33**, 4, 425–41.

Denscombe, M. (2000). 'Social conditions for stress: young people's experience of doing GCSEs', *British Educational Research Journal*, **26**, 3, 359–74.

Department for Education and Skills (2003b). *Connexions Stakeholder Survey: Headline Findings of the Quantitative Survey* (DfES Research Brief No RBX 07-03). London: DfES.

Diment, K. (2003). 'W(h)ither Shakespeare?' *The Use of English*, **55**, 1, 16–26.

Dodd, H. and Bone, T. (1995). 'To what extent does the National Curriculum for mathematics serve the needs of science?' *Teaching Mathematics and Its Applications*, **14**, 3, 102–6.

Doddington, C. with Bearne, E., Demetriou, H. and Flutter, J. (2001). 'Testing, testing, testing ... can you hear me? Can Year 3 pupils tell us anything we don't know about assessment?' *Education 3–13*, **29**, 3, 43–6.

Doddington, C., Flutter, J. and Rudduck, J. (1999). *Improving Learning: the Pupils' Agenda. A Project Supported by The Nuffield Foundation 1997–98. A Report for Primary Schools*. Cambridge: University of Cambridge, Homerton College.

Duffield, J. (1998). 'Learning and behaving: pupils' voices on achievement.' Paper presented at the British Educational Research Association Annual Conference, University of Belfast, Belfast, 27–30 August.

Duffield, J., Allan, J., Turner, E. and Morris, B. (2000). 'Pupils' voices on achievement? An alternative to the standards agenda', *Cambridge Journal of Education*, **30**, 2, 263–74.

Duggan, S., Gott, R., Lubben, F. and Millar, R. (1996). 'Evidence in science education.' In: Hughes, M. (Ed) *Teaching and Learning in Changing Times*. Oxford: Blackwell.

Duveen, J., Scott, L. and Solomon, J. (1993). 'Pupils' understanding of science: description of experiments or 'a passion to explain'?' *School Science Review*, **75**, 271, 19–27.

Eady, S. (2002). 'Science is for life', *Primary Science Review*, **71**, 4–7.

Ellis, S.W. (1999). 'National Curriculum testing across the interface at key stage 2/key stage 3: a view from the bridge', *Curriculum*, **20**, 1, 38–51.

Fairclough, S. (2003). 'Physical activity, perceived competence and enjoyment during secondary school physical education', *European Journal of Physical Education*, **8**, 1, 5–18.

Fairclough, S. and Ridley, P. (2001). 'The teaching and learning of health-related exercise at key stage 2', *Bulletin of Physical Education*, **37**, 2, 136–55.

Farey, L. (1997). 'Sex education: young people's views', *Children UK*, **14**, 14.

Fenwick, G. (1994). 'Fact or fiction? Primary school pupils' choice', *Education Today*, **44**, 2, 9–11.

Fenwick, G. and Burns, D. (1997). 'Poetry – primary school pupils' knowledge and attitudes with specific reference to Year 5', *Reading*, **31**, 3, 60–3.

Fielding, M., Fuller, A. and Loose, T. (1999). 'Taking pupil perspectives seriously: the central place of pupil voice in primary school improvement.' In: Southworth, G. and Lincoln, P. (Eds) *Supporting Improving Primary Schools*. London: Falmer Press.

Fisher, H. (2001). 'Achieving the best: gender and the Literacy Hour', *British Journal of Special Education*, **28**, 1, 30–4.

Fisher, L. and Evans, M. (2000). 'The school exchange visit: effects on attitude and proficiency in language and learning', *Language Learning Journal*, **22**, 11–16.

Fitzgerald, H., Jobling, A. and Kirk. D. (2003). 'Listening to the 'voices' of students with severe learning difficulties through a task-based approach to research and learning in physical education', *Support for Learning*, **18**, 3, 123–9.

Flintoff, A. and Scraton, S. (2001). 'Stepping into active leisure? Young women's perceptions of active lifestyles and their experiences of school physical education', *Sport, Education and Society*, **6**, 1, 5–21.

Flutter, J., Rudduck, J., Addams, H., Johnson, M. and Maden, M. (1999). *Improving Learning: the Pupils' Agenda. A Project Supported by The Nuffield Foundation 1997–98. A Report for Secondary Schools*. Cambridge: University of Cambridge, Homerton College.

Ford, T. and Holdsworth, I. (1999). 'Taking the softer option? Aspects of Year 9 pupils' attitudes to using materials', *Journal of Design and Technology Education*, **4**, 1, 15–20.

Forrest, S., Strange, V. and Oakley, A. (2002). 'A comparison of students' evaluations of a peer-delivered sex education programme and teacher-led provision', *Sex Education*, **2**, 3, 195–214.

Foskett, N., Dyke, M. and Maringe, F. (2003). 'The influence of the school on the decision to participate in learning post 16.' Paper presented at the Annual Conference of the British Educational Research Association, Heriot-Watt University, Edinburgh, 11–13 September.

Francis, B., Hutchings, M. and Read, B. (2004). *Science in Girls' Schools: Factors that Contribute to Girls' Engagement and Attainment* (Report on the Research Commissioned by the Association for Maintained Girls' Schools). London: Institute for Policy Studies in Education.

Francis, L.J. and Greer, J.E. (1999). 'Attitude towards science among secondary school pupils in Northern Ireland: relationship with sex, age and religion', *Research in Science & Technological Education*, **17**, 1, 67–74.

Francis, L.J. and Greer, J.E. (1999b). 'Measuring attitude towards science among secondary school students: the affective domain', *Research in Science & Technological Education*, **17**, 2, 219–26.

Galton, M., Hargreaves, L. and Pell, T. (2003). 'Progress in the middle years of schooling: continuities and discontinuities at transfer', *Education 3-13*, **31**, 2, 9–18.

Garner, P. (1993). 'What disruptive students say about the school curriculum and the way it is taught', *Therapeutic Care and Education*, **2**, 3, 404–15.

Glover, D. and Law, S. (2001a). 'For now, or all time? Student understanding of key skills in the curriculum', *Management in Education*, **15**, 3, 15–17.

Glover, D. and Law, S. (2001b). 'Attention to detail', *Managing Schools Today*, **11**, 1, 42–4.

Glover, D. and Law, S. (2004). 'Creating the right learning environment: the application of models of culture to student perceptions of teaching and learning

in eleven secondary schools', *School Effectiveness and School Improvement*, **15**, 3–4, 313–36.

Goodchild, S. (1995). 'Year 10 students' experiences of mathematics.' Paper presented at the British Society for Research into Learning Mathematics and Association of Mathematics Education, Loughborough, May.

Goudas, M. and Biddle, S. (1993). Pupil perceptions of enjoyment in physical education', *Physical Education Review*, **16**, 2, 145–50.

Graham, S. (2002). 'Experiences of learning French: a snapshot at years 11, 12 and 13', *Language Learning Journal*, **25**, 15–20.

Grainger, H. (2003). 'Just a bit thick - or is there more to it?' *Proceedings of the British Society for Research into Learning Mathematics*, **23**, 3 [online]. Available:
http://www.bsrlm.org.uk/november2003stuff/BSRLMNov2003InformalProceedings.?pdf [11 February, 2005].

Grainger, T., Goouch, K. and Lambirth, A. (2003). 'Playing the game called writing: children's views and voices', *English in Education*, **37**, 2, 4–15.

Green, C., Hamnett, L. and Green, S. (2001). 'Children put the national tests to the test', *Education 3–13*, **29**, 3, 39–42.

Green, S. (2002). 'Children put the national tests to the test.' Paper presented at the British Educational Research Association Annual Conference, University of Exeter, 12–14 September [online]. Available: www.leeds.ac.uk/educol/documents/00002415.htm [11 March, 2004].

Griffiths, J. and Jones, L. (1994). 'And you have to dissect frogs!' *Forum*, **36**, 3, 83–4.

Hahn, C.L. (1999). 'Citizenship education: an empirical study of policy, practices and outcomes', *Oxford Review of Education*, **25**, 1&2, 231–50.

Hall, D. and Raffo, C. (2001). 'Work-related learning: rethinking notions of motivational and attainment transfer between schools and the workplace for young people.' Paper presented at the British Educational Research Association Annual Conference, University of Leeds, 13–15 September [online]. Available: http://www.leeds.ac.uk/educol/documents/00001896.htm [11 March, 2004].

Hall, I. and Higgins, S. (2005). 'Primary school students' perceptions of interactive whiteboards', *Journal of Computer Assisted Learning*, **21**, 102–17.

Hallam, S. and Deathe, K. (2002). 'Ability grouping: year group differences in self-concept and attitudes of secondary school pupils', *Westminster Studies in Education*, **25**, 1, 7–17.

Halstead, J.M. and Taylor, M.J. (2000). *The Development of Values, Attitudes and Personal Qualities: a Review of Recent Research*. Slough: NFER.

Hamblett, M. (1994). 'Pupils' perceptions of health education at school', *Health Education*, **2**, 15–17.

Hamilton, L. and Brown, J. (2005). ''Judgement day is coming!': young people and the examination process in Scotland', *Improving Schools*, **8**, 1, 47–57.

Hancock, R. and Mansfield, M. (2002). 'The literacy hour: a case for listening to children', *The Curriculum Journal*, **13**, 2, 13–200.

Harland, J., Ashworth, M., Bower, R., Hogarth, S., Montgomery, A. and Moor, H. (1999b). *Real Curriculum: at the Start of Key Stage 3. Report Two from the Northern Ireland Curriculum Cohort Study*. Slough: NFER.

Harland, J., Kinder, K., Ashworth, M., Montgomery, A., Moor, H. and Wilkin, A. (1999a). *Real Curriculum: at the End of Key Stage 2: Report One from the Northern Ireland Curriculum Cohort Study*. Slough: NFER.

Harland, J., Kinder, K. and Hartley, K. (1995). *Arts in Their View: a Study of Youth Participation in the Arts*. Slough: NFER.

Harland, J., Kinder, K., Haynes, J. and Schagen, I. (1998). *The Effects and Effectiveness of Arts Education in Schools. Interim Report 1*. Slough: NFER.

Harland, J., Kinder, K., Lord, P., Stott, A., Schagen, I., Haynes, J., Cusworth, L., White, R. and Paola, R. (2000). *Arts Education in Secondary Schools: Effects and Effectiveness*. Slough: NFER.

Harland, J., Moor, H., Kinder, K. and Ashworth, M. (2002). *Is the Curriculum Working? The Key Stage 3 Phase of the Northern Ireland Curriculum Cohort Study.* Slough: NFER.

Harland, J., Moor, H., Lord, P., Kinder, K., Kaur, S., Johnson, F. and Felgate, R. (2003). Talking 4: the Pupil Voice on the Key Stage 4 Curriculum. Key Stage 4 Phase Short Report (Report 4 of the Northern Ireland Curriculum Cohort Study). Belfast: CCEA.

Harris, J. (1994a). 'Young people's perceptions of health, fitness and exercise: implications for the teaching of health related exercise', *Physical Education Review*, **17**, 2, 143–51.

Harris, M. and Wilson, V. (2003). *Designs on the Curriculum? A Review of the Literature on the Impact of Design and Technology in Schools in England* (DfES Research Report 401). London: DfES.

Harris, S. (1994). 'Entitled to what? Control and autonomy in school: a student perspective', *International Studies in Sociology of Education*, **4**, 1, 57–76.

Harris, S. and Rudduck, J. (1994). ''School's great ? apart from the lessons': student's early experiences of learning in secondary school.' In: Hughes, M. (Ed) *Perceptions of Teaching and Learning* (BERA Dialogues 8). Clevedon: Multilingual Matters.

Harris, S., Nixon, J. and Rudduck, J. (1993). 'School work, homework and gender', *Gender and Education*, **5**, 1, 3–15.

Harris, S., Rudduck, J. and Wallace, G. (1996). 'Political contexts and school careers.' In: Hughes, M. (Ed) *Teaching and Learning in Changing Times.* Oxford: Blackwell.

Hawkey, R. and Clay, J. (1998). 'Expectations of secondary science: realisation and retrospect', *School Science Review*, **79**, 289, 81–3.

Haynes, G. and Wragg, C. (2002). 'A city-wide vocational curriculum – Exeter, a case study.' Paper presented at the British Educational Research Association Annual Conference, University of Exeter, 12–14 September [online]. Available: http://www.leeds.ac.uk/educol/documents/00002503.htm [12 March, 2004].

Healthlines Magazine (1999). 'Who should teach PSHE?' *Healthlines Magazine*, **58**, 16–17.

Heath, L. (1999). 'Do we always know what is best for learners?' *Primary Science Review*, **57**, 30–2.

Hendley, D. and Lyle, S. (1996). 'Pupils' perceptions of design and technology: a case-study of pupils in South Wales', *Research in Science & Technological Education*, **14**, 2, 141–51.

Hendley, D., Parkinson, J., Stables, A. and Tanner, H. (1995). 'Gender differences in pupil attitudes to the National Curriculum foundation subjects of English, mathematics, science and technology in key stage 3 in South Wales', *Educational Studies,* **21**, 1, 85–97.

Hendley, D., Stables, A., Parkinson, J. and Tanner, H. (1996a). 'Pupils' attitudes to technology in key stage 3 of the National Curriculum: a study of pupils in South Wales', *International Journal of Technology and Design Education,* **6**, 1, 15–29.

Hendley, D., Stables, S. and Stables, A. (1996b). 'Pupils' subject preferences at key stage 3 in South Wales', *Educational Studies*, **22**, 2, 177–86.

Hillage, J., Kodz, J. and Pike, G. (2001). *Pre-16 Work Experience in England: an Evaluation* (DfEE Research Report 263). London: DfEE.

Hine, A. (1997). 'Motivation and methodology: perspectives from an ongoing research enquiry into students' conceptions of technology', *Journal of Design and Technology Education*, **2**, 3, 208–17.

Hodkinson, A. (2003). 'The usage of subjective temporal phrases within the National Curriculum for history and its schemes of work: effective provision or a missed opportunity?' *Education 3-13*, **31**, 3, 28–34.

Hodkinson, A. (2004). 'Does the English curriculum for history and its schemes of work effectively promote primary-aged children's assimilation of the concepts of historical time? Some observations based on current research', *Educational Research*, **46**, 2, 99–117.

Hopwood, N. (2005). 'Year 9 students' conceptions of geography', *Teaching Geography*, **30**, 2, 91–3.

Hopwood, T. and Carrington, B. (1994). 'Physical education and femininity', *Educational Research*, **36**, 3, 237–46.

Howieson, C. and Semple, S. (2001). *Pupils' Experience of the Careers Service* (CES Briefing No. 23). Edinburgh: University of Edinburgh, Centre for Educa-

tional Sociology [online]. Available: http://www.ed.ac.uk/ces/PDF%20Files/Brief023.pdf [2 October, 2003].

Huggins, M. (1996). 'An analysis of the rationales for learning history given by children and teachers at key stage 2', *The Curriculum Journal*, **7**, 3, 307–21.

Huggins, M. (2002). 'Crossing the key stages of religious education: pupils' and teachers' perceptions of RE in years 6 and 7', *British Journal of Religious Education*, **24**, 2, 86–98.

Ingram, J. (1992). 'Starting from the child: a partnership approach to delivering the National Curriculum', *Early Child Development and Care*, **83**, 121–32.

Ireson, J., Hallam, S. and Plewis, I. (2001). 'Ability grouping in secondary schools: effects on pupils' self-concepts', *British Journal of Educational Psychology*, **71**, 2, 315–26.

Jamison, J. (2001). 'Secondary school pupils' views of health education within PSHE', *TOPIC*, Issue 25, Item 4.

Jarman, R. (1993). ''Real experiments with Bunsen burners': pupils' perceptions of the similarities and differences between primary science and secondary science', *School Science Review*, **74**, 268, 19–29.

Jarman, R. and McAleese, L. (1996a). 'A survey of children's reported use of school science in their everyday lives', *Research in Education*, **55**, 1–15.

Jarman, R. and McAleese, L. (1996b). 'Physics for the star-gazer: pupils' attitudes to astronomy in the Northern Ireland science curriculum', *Physics Education*, **31**, 4, 223–6.

Jeffrey, B. and Woods, P. (1997). 'The relevance of creative teaching: pupils' views.' In: Pollard, A., Thiessen, D. and Filer, A. *Children and Their Curriculum: the Perspectives of Primary and Elementary School Children*. London: Falmer Press.

Jenkins, E.W. and Nelson, N.W. (2005). 'Important but not for me: students' attitudes towards secondary school science in England', *Research in Science and Technological Education*, **23**, 1, 41–57.

John, D. and Thomas, G. (1997). 'Pupil attitudes to National Curriculum technology', *Journal of Design and Technology Education*, **2**, 2, 117–25.

Johnson, M. (2002). 'What makes a good writing stimulus? – 11 year olds express their views.' Paper presented at the British Educational Research Association Annual Conference, Exeter University, Exeter, 12–14 September.

Johnson, M. (2003). 'Concepts of difficulty – a child's eye view.' Paper presented at the British Educational Research Association Annual Conference, Heriot-Watt University, Edinburgh, 11–13 September.

Johnson, M. and Green, S. (2004). 'On-line assessment: the impact of mode on students' strategies, perceptions and behaviours.' Paper presented at the British Educational Research Association Annual Conference, University of Manchester, 16–18 September.

Johnson, A. and Lord, P. (2004). Pupils' experiences and perspectives on aspects of school and education: the feasibility of reviewing the research. Unpublished report.

Jones, R. and Cheetham, R. (2001). 'Physical education in the National Curriculum: its purpose and meaning for final year secondary school students', *European Journal of Physical Education*, **6**, 2, 81–100.

Kay, W.K. and Linnet Smith, D. (2002). 'Classroom factors and attitude toward six world religions', *British Journal of Religious Education*, **24**, 2, 111–22.

Kelly, P. (2002). 'Children's experiences of mathematics.' Paper presented at the British Educational Research Association Annual Conference, University of Exeter, 12–14 September [online]. Available: http://www.leeds.ac.uk/educol/documents/00003083.htm [12 March, 2004].

Kent, N. and Facer, K. (2004). 'Different worlds? A comparison of young people's home and school ICT use', *Journal of Computer Assisted Learning*, **20**, 6, 440–55.

Kerr, D., Ireland, E., Lopes, J. and Craig, R. with Cleaver, E. (2004). *Making Citizenship Education Real: Citizenship Education Longitudinal Study. Second Annual Report. First Longitudinal Survey* (DfES Research Report 531). London: DfES.

Kerr, D., Lines, A., Blenkinsop, S. and Schagen, I. (2001). *Citizenship and Education at Age 14: a Summary of the International Findings and Preliminary Results for England. IEA International Citizenship Education Study.* Slough: National Foundation for Educational Research.

Keys, W. and Fernandes, C. (1993). *What Do Students Think about School? Research into the Factors Associated with Positive and Negative Attitudes Towards School and Education*. Slough: NFER.

Keys, W. and Maychell, K. with Evans, C., Brooks, R., Lee, B. and Pathak, S. (1998). *Staying On: a Study of Young People's Decisions about School Sixth Forms, Sixth-form Colleges and Colleges of Further Education*. Slough: NFER.

Kinchin, D., Wardle, C., Roderick, S. and Sprosen, A. (2004). 'A survey of year 9 boys' perceptions of sport education in one English secondary school', *The Bulletin of Physical Education*, **40**, 1, 27–40.

Kinder, K., Wakefield, A. and Wilkin, A. (1996). *Talking Back: Pupil Views on Disaffection.* Slough: NFER.

Kirkman, C. (1993). 'Computer experience and attitudes of 12-year-old students: implications for the UK National Curriculum', *Journal of Computer Assisted Learning*, **9**, 1, 51–62.

Lee, D. and Gavine, D. (2003). 'Goal setting and self-assessment in year 7 students', *Educational Research*, **45**, 1, 49–59.

Lee, P., Dickinson, A. and Ashby, R. (1996). ''There were no facts in those days': children's ideas about historical explanation.' In: Hughes, M. (Ed) *Teaching and Learning in Changing Times.* Oxford: Blackwell.

Leonard, M. and Davey, C. (2001). *Thoughts on the 11 Plus: a Research Report Examining Children's Experiences of the Transfer Test.* Belfast: Save the Children.

Lightbody, P., Siann, G., Stocks, R. and Walsh, D. (1996). 'Motivation and attribution at secondary school: the role of gender', *Educational Studies,* **22**, 1, 13–25.

Lister, R., Middleton, S. and Smith, N. (2001). *Young People's Voices: Citizenship Education*. Leicester: National Youth Agency.

Littledyke, M. (2002). 'Primary children's views on science and environmental issues: examples of environmental cognitive and moral development.' Paper presented at the European Conference on Educational Research, University of Lisbon, Portugal, 11–14 September.

Lyle, S. (1999). 'An investigation of pupil perceptions of mixed-ability grouping to enhance literacy in children aged 9–10', *Educational Studies*, **25**, 3, 283–96.

Lyle, S. and Hendley, D. (1998). 'An investigation into the perceptions of head teachers, children and parents concerning standard assessment tests in mathematics, science and English at key stage 2', *The Welsh Journal of Education*, **7**, 2, 37–55.

Mac An Ghaill, M. (1992). 'Student perspectives on curriculum innovation and change in an English secondary school: an empirical study', *British Educational Research Journal*, **18**, 3, 221–34.

Maitles, H. and Cowan, P. (2004). 'One country, many cultures!: Does Holocaust education have an impact on pupils' citizenship values and attitudes?' Paper presented at the Scottish Educational Research Association Conference, Perth, 25–27 November.

Maitles, H. and Gilchrist, I. (2004). 'We're not citizens in waiting, we're citizens now!: a case study of a democratic approach to learning in an RME secondary class in the West of Scotland.' Paper presented at the European Conference on Educational Research, University of Crete, 22–25 September.

Markwick, A., Jackson, A. and Hull, C. (2003). 'Improving learning using formative marking and interview assessment techniques', *School Science Review*, **85**, 311, 49–55.

Martin, C. (2002). 'Children's views about encountering a variety of foreign languages in the primary school', *Education 3–13*, **30**, 1, 52–7.

Massey, A., Green, S., Dexter, T. and Hamnett, L. (2003). *Comparability of National Tests Over Time: Key Stage Test Standards Between 1996 and 2001. Final Report to the QCA of the Comparability Over Time Project* [online]. Available: http://www.qca.org.uk/downloads/compare_nat_tests_1996_2001.pdf [11 February, 2005].

Maychell, K. and Evans, C. with Brooks, R., Lee, B. and Pathak, S. (1998). *Leaving at 16: a Study of Factors Affecting Young People's Decision to Leave Full-time Education*. Slough: NFER.

McCallum, B., Hargreaves, E. and Gipps, C. (2000). 'Learning: the pupil's voice', *Cambridge Journal of Education*, **30**, 2, 275–89.

McCallum, I. and Demie, F. (2001). 'Social class, ethnicity and educational performance', *Educational Research*, **43**, 2, 147–59.

McCarthy, A.C. and Moss, G.D. (1994). 'A comparison of male and female pupil perceptions of technology in the curriculum', *Research in Science & Technological Education,* **12**, 1, 5–13.

McKenzie, A. (2003). 'Work in progress: education for citizenship in four jurisdictions – interviews with teachers and pupils in England, Wales, Northern Ireland, Scotland', *The Development Education Journal*, **9**, 2, 28–9.

McNess, E., Triggs, P., Broadfoot, P., Osborn, M. and Pollard, A. (2001). 'The changing nature of assessment in English primary classrooms: findings from the PACE Project 1989–1997', *Education 3–13*, **29**, 3, 9–16.

McPake, J., Harlen, W., Powney, J. and Davidson, J. (1999). *Teachers' and Pupils' Days in the Primary Classroom*. Edinburgh: SCRE.

Measor, L., Tiffin, C. and Fry, K. (1996). 'Gender and sex education: a study of adolescent responses', *Gender and Education*, **8**, 3, 275–88.

Measor, L. with Tiffin, C. and Miller, K. (2000). *Young People's Views on Sex Education: Education, Attitudes and Behaviour*. London: RoutledgeFalmer Press.

Mellor, L. (2000). 'Listening, language and assessment: the pupils' perspective', *British Journal of Music Education*, **17**, 3, 247–63.

Millar, R. and Brotherton, C. (2001). 'Expectations, recall and evaluation of careers guidance interviews by pupils and careers advisers: a preliminary study', *British Journal of Guidance and Counselling*, **29**, 1, 95–110.

Miller, D., Parkhouse, P., Eagle, R. and Evans, T. (1999). 'Pupils and the core subjects: a study of the attitudes of some pupils aged 11–16.' Paper presented at

the British Educational Research Association Annual Conference, University of Sussex, Brighton, 2–5 September [online]. Available: http://www.leeds.ac.uk/educol/documents/00001427.htm [15 November, 1999].

Milosevic, L. (1996). 'Pupils' experience of P.E. questionnaire results', *British Journal of Physical Education*, **27**, 1, 16–20.

Mitchell, R., Hooper, J. and Brumfit, C. (1994). *'Knowledge about Language', Language Learning and the National Curriculum. Final Report* (Centre for Language in Education, Occasional Papers, 19). Southampton: University of Southampton, Centre for Language in Education.

Moor, H., Bedford, N., Johnson, A., Hall, M. and Harland, J. (2004). *Moving Forward: Thinking Back. Young People's Post-16 Paths and Perspectives on Education, Training and Employment. The Post-16 Phase of the Northern Ireland Curriculum Cohort Study: Full Report*. Slough: NFER.

MORI (1998). Attitudes Towards the Aims and Purposes of the National Curriculum. Qualitative Research Among Key Audiences. Unpublished report.

Morris, M., Lines, A. and Golden, S. (1999a). *The Impact of Careers Education and Guidance on Young People in Years 9 and 10: a Follow Up Study* (RD 20). Sheffield: DfEE.

Morris, M., Nelson, J., Rickinson, M. and Stoney, S. with Benefield, P. (1999b). *A Literature Review of Young People's Attitudes Towards Education, Employment and Training* (DfEE Research Report 170). London: DfEE.

Morris, M. with Schagen, I. (1996). *Green Attitudes or Learned Responses?* Slough: NFER.

Morris, Z.S., John, P. and Halpern, D. (2003). 'Compulsory citizenship for the disenfranchised: benchmarking students, schools and social and political attitudes before the Citizenship Order', *The Curriculum Journal*, **14**, 2, 181–99.

Morrison, I. (2000). ''School's great – apart from the lessons': sustaining the excitement of learning post-transfer', *Improving Schools*, **3**, 1, 46–9.

Murphy, C. and Beggs, J. (2001). 'Pupils' attitudes, perceptions and understanding of primary science: comparisons between Northern Irish and English

schools.' Paper presented at the Annual Conference of the British Educational Research Association, University of Leeds, Leeds, 13–15 September.

Murray, I. and Reiss, M. (2005). 'The student review of the science curriculum', *School Science Review*, **87**, 318, 83–92.

Myhill, D. (1999). 'Boy zones and girl power: gender perceptions and preferences in English', *Curriculum*, **20**, 2, 86–99.

Nardi, E. and Steward, S. (2002a). 'I could be the best mathematician in the world … if I actually enjoyed it', *Mathematics Teaching*, **179**, 41–4.

Nardi, E. and Steward, S. (2002b). 'I could be the best mathematician in the world … if I actually enjoyed it: Part 2', *Mathematics Teaching*, **180**, 4–9.

Neil, P. (1996). 'German in the classroom: what the pupils think', *Language Learning Journal*, **13**, 10–15.

Neil, P.S. and O'Rawe, D. (1998). 'Northern Ireland teachers' and pupils' views on 'Science Across Europe'', *School Science Review*, **79**, 289, 89–94.

Nelson, J., Morris, M., Rickinson, M., Blenkinsop, S. and Spielhofer, T. (2001). *Disapplying National Curriculum Subjects to Facilitate Extended Work-related Learning at Key Stage 4: an Evaluation* (DfES Research Report 293). London: DfES.

Newman, E. (1997). 'Children's views of school – a vehicle for developing teacher practice.' Paper presented at the British Educational Research Association Annual Conference, University of York, York, 11–13 September.

Newton, D.P. and Newton, L.D. (1997). 'Has the National Curriculum changed children's minds about scientists?' *British Journal of Curriculum & Assessment*, **7**, 2, 24–6.

Newton, L. and Newton, D. (1999). 'Knowing what counts as understanding in different disciplines: some 10-year-old children's conceptions', *Educational Studies*, **25**, 1, 35–54.

Norman, M. and Harrison, L. (2004). 'Year 9 students' perceptions of school geography', *Teaching Geography*, **29**, 1, 11–15.

Nundy, S. (1999). 'The fieldwork effect: the role and impact of fieldwork in the upper primary school', *International Research in Geographical and Environmental Education*, **8**, 2, 190–8.

Orme, J. (1991). 'Adolescent girls and exercise: too much of a struggle?' *Education and Health*, **9**, 5, 76–80.

Osborn, M. (1999). 'National context, educational goals and pupil experience of schooling and learning in three European countries', *Compare*, **29**, 3, 287–301.

Osborn, M., Broadfoot, P., McNess, E., Planel, C. and Triggs, P. (2001). *Education and National Culture: a Comparative Study of Pupil Attitudes to Secondary Schooling* (Research Report: Researching Culture and Learning in Organisations). Bristol: University of Bristol, Graduate School of Education.

Osborne, J., Black, P., Boaler, J., Brown, M., Driver, R., Murray, R. and Simon, S. (1997). *Attitudes to Science, Mathematics and Technology: a Review of Research*. London: King's College.

Osborne, J. and Collins, S. (2000). 'Pupils' and parents' views of the school science curriculum', *School Science Review*, **82**, 298, 23–31.

Osborne, J. and Collins, S. (2001). 'Pupils' views of the role and value of the science curriculum: a focus-group study', *International Journal of Science Education*, **23**, 5, 441–67.

Parkinson, J., Hendley, D., Tanner, H. and Stables, A. (1998). 'Pupils' attitudes to science in key stage 3 of the National Curriculum: a study of pupils in South Wales', *Research in Science & Technological Education*, **16**, 2, 165–76.

Pearson, S. (2003). ''I'd like to read fluorescently' – Year 7 pupils' developing views of reading and their progress', *British Journal of Special Education*, **30**, 2, 79–86.

Pell, T. and Jarvis, T. (2001). 'Developing attitude to science scales for use with children of ages from five to eleven years', *International Journal of Science Education*, **23**, 8, 847–62.

Pendry, A. (1997). 'Pupil preconceptions in history', *Teaching History*, **86**, 18–20.

Pike, M.A. (2002). 'The canon in the classroom: students' experiences of texts from other times', *Journal of Curriculum Studies*, **35**, 3, 355–70.

Plewis, I. (1996). 'Changes in the classroom experience of inner London infant pupils, 1984–1993', *Education 3-13*, **24**, 1, 35–41.

Plewis, I. and Veltman, M. (1996). 'Where does all the time go? Changes in pupils' experiences in Year 2 classrooms.' In: Hughes, M. (Ed) *Teaching and Learning in Changing Times*. Oxford: Blackwell.

Pollard, A. (1996). 'Playing the system? Pupil perspectives on curriculum, pedagogy and assessment in primary schools.' In: Croll, P. (Ed) *Teachers, Pupils and Primary Schooling: Continuity and Change*. London: Cassell.

Pollard, A., Broadfoot, P., Croll, P., Osborn, M. and Abbott, D. (1994). *Changing English Primary Schools? The Impact of the Education Reform Act at Key Stage One*. London: Cassell.

Pollitt, A. (2002). *Do Pupils Get Steadily Better at Reading and Writing English as they Progress Through School?* [online]. Available: http://www.qca.org.uk/rs/rer/ks3_dip_report.asp [11 March, 2003].

Qualifications and Curriculum Authority (2004a). Post-14 Mathematics: Student Focus Groups 2004. Internal Report. Unpublished report.

Qualifications and Curriculum Authority (2004b). Pupils' Perspectives on Science 2003/4. Internal report. Unpublished report.

Ratcliffe, M. (1998). 'Discussing socio-scientific issues in science lessons – pupils' actions and the teacher's role', *School Science Review*, **79**, 288, 55–9.

Rayment, T. (1999). 'Assessing National Curriculum art AT2, knowledge and understanding: a small-scale project at key stage 3', *Journal of Art and Design Education*, **18**, 2, 189–94.

Reay, D. and Wiliam, D. (1999). 'I'll be a nothing: structure, agency and the construction of identity through assessment', *British Educational Research Journal*, **25**, 3, 343–54.

Regis, D. (2000). 'What do young people think of PSHE?' *Education and Health*, **18**, 2, 36–7.

Reid, A. and Jones, M. (2002). 'Learning from GCSE coursework', *Teaching Geography*, **27**, 3, 120–5.

Reid, N. and Skryabina, E.A. (2002). 'Attitudes towards physics', *Research in Science & Technological Education*, **20**, 1, 67–81.

Reiss, M.J. (2000). *Understanding Science Lessons: Five Years of Science Teaching*. Buckingham: Open University Press.

Reiss, M.J. (2001). 'How to ensure that pupils don't lose interest in science', *Education Today*, **51**, 2, 34–40.

Remedios, R., Ritchie, K. and Lieberman, D. (2005). 'I used to like it but now I don't: The effect of the transfer test in Northern Ireland on pupils' intrinsic motivation', *British Journal of Educational Psychology*, **75**, 435–52.

Rickinson, M. (1999). 'People-environment issues in the geography classroom: towards an understanding of students' experiences', *International Research in Geographical and Environmental Education*, **8**, 2, 120–39.

Rickinson, M. (2001). 'Learners and learning in environmental education: a critical review of the evidence' (Special Issue), *Environmental Education Research*, **7**, 3, (whole issue).

Robson, S. (1993). ''Best of all I like choosing time': talking with children about play and work', *Early Child Development and Care*, (Special Issue: Taking Notice: Observation in Early Childhood Education), **92**, 37–51.

Rodd, M. (1993). 'Students' views on the nature of mathematics', *Mathematics Teaching*, **143**, 8–10.

Rogers, L. (2003). 'Gender differences in approaches to studying for GCSE among year 10 pupils', *The Psychology of Education Review*, **27**, 1, 18–27.

Ronayne, M. (1999). 'Marking and feedback', *Improving Schools*, **2**, 2, 43–52.

Ross, M. and Kamba, M. (1997). *The State of the Arts in Five English Secondary Schools*. Exeter: University of Exeter, School of Education.

Rudduck, J. (1996). *Pupils' Experiences of Teaching and Learning*. Swindon: Economic and Social Research Council.

Rudduck, J., Harris, S. and Wallace, G. (1994). ''Coherence' and students' experience of learning in the secondary school', *Cambridge Journal of Education*, **24**, 2, 197–211.

Ruthven, K. (1995). 'Pupils' views of number work and calculators', *Educational Research*, **37**, 3, 229–37.

Sanderson, P. (2001). 'Age and gender issues in adolescent attitudes to dance', *European Physical Education Review*, **7**, 2, 117–36.

Saunders, L., Stoney, S. and Weston, P. with Benefield, P. and MacDonald, A. (1996). *Literature Review of the Impact of the Work-Related Curriculum on 14–16 Year Olds* (DfEE Research Studies 33). London: The Stationery Office.

Scott, G. and West, A. (1990). 'Pupils' attitudes towards physical education', *British Journal of Physical Education*, **21**, 2, 313–14.

Sears, J. (1995). 'Balanced science and pupil attitudes', *British Journal of Curriculum and Assessment*, **5**, 2, 26–9.

Selwyn, N. (2001). 'Turned on/switched off: exploring children's engagement with computers in primary school', *Journal of Educational Computing Research*, **25**, 3, 245–66.

Selwyn, N. and Bullon, K. (2000). 'Primary school children's use of ICT', *British Journal of Educational Technology*, **31**, 4, 321–32.

Sex Education Forum (1999). 'Young people's views of sex and relationship education', *Sex Education Matters*, **19**, 8.

Sharp, J. (1995). 'Children's astronomy: implications for curriculum developments at key stage 1 and the future of infant science in England and Wales', *International Journal of Early Years Education*, **3**, 3, 17–49.

Sharp, J.G. (1996). 'Children's astronomical beliefs: a preliminary study of Year 6 children in south-west England', *International Journal of Science Education*, **18**, 6, 685–712.

Sharp, J.G., MacKintosh, M.A.P. and Seedhouse, P. (1995). 'Some comments on children's ideas about earth structure, volcanoes, earthquakes and plates', *Teaching Earth Sciences*, **20**, 1, 28–30.

Sharp, K. (1998). 'Year 8 – lost at sea', *Managing Schools Today*, **8**, 3, 24–6.

Shenton, A. and Dixon, P. (2004). 'Information needs issues emerging from school assignments', *Education Libraries Journal*, **47**, 2, 21–9.

Sherman, A. (1997), 'Five-year-olds' perceptions of why we go to school', *Children & Society*, **11**, 2, 117–27.

Singleton, C. (2001). 'Computer-based assessment in education', *Educational and Child Psychology*, **18**, 3, 58–74.

Smees, R. and Thomas, S. (1998). 'Valuing pupils' views about school', *British Journal of Curriculum & Assessment*, **8**, 3, 7–9.

Smith, E. and Gorard, S. (2005). ''They don't give us our marks': the role of formative feedback in student progress', *Assessment in Education*, **12**, 1, 21–38.

Spencer, P. (1993). 'GCSE music: a survey of undergraduate opinion', *British Journal of Music Education*, **10**, 2, 73–84.

Stables, A., Davies, S., Hendley, D., Parkinson, J., Stables, S. and Tanner, H. (1995). 'Attitudes to English at key stage 3', *English in Education*, **29**, 3, 29–36.

Stables, A. and Wikeley, F. (1997). 'Changes in preference for and perceptions of relative importance of subjects during a period of educational reform', *Educational Studies*, **23**, 3, 393–403.

Stables, A. and Wikeley, F. (1999). 'From bad to worse? Pupils' attitudes to modern foreign languages at ages 14 and 15', *Language Learning Journal*, **20**, 27–31.

Stark, R. and Gray, D. (1999). 'Gender preferences in learning science', *International Journal of Science Education*, **21**, 6, 633–43.

Stidder, G. (2000a). 'Does sex matter? Pupil perceptions of physical education in mixed and single sex secondary schools', *The British Journal of Teaching Physical Education*, **31**, 3, 40–3.

Stidder, G. (2000b). 'Does sex matter? Pupil perceptions of physical education in mixed and single sex secondary schools (Part 2)', *The British Journal of Teaching Physical Education*, **31**, 4, 46–8.

Stoney, S., Ashby, P., Golden, S. and Lines, A. (1998). *Talking about 'Careers': Young People's Views of Careers Education and Guidance at School* (RD18). Sheffield: DfEE.

Stott, T., Howard, R. and Linnett, R. (1997). 'What influences students' choice of geography at GCSE?' *Teaching Geography*, **22**, 4, 192–3.

Strange, V., Forrest, S. and Oakley, A. (2002). 'What influences peer-led sex education in the classroom? A view from the peer educators', *Health Education Research*, **17**, 3, 339–49.

Sweiry, E., Crisp, V., Ahmed, A. and Pollitt, A. (2002). 'Tales of the expected: the influence of students' expectations on exam validity.' Paper presented at the British Educational Research Association Annual Conference, University of Exeter, 12–14 September [online]. Available: http://www.leeds.ac.uk/educol/documents/00002543.htm [11 March, 2004].

Tisdall, G. and Dawson, R. (1994). 'Listening to the children: interviews with children attending a mainstream support facility', *Support for Learning*, **9**, 4, 179–82.

Tunstall, P. and Gipps, C. (1996). ''How does your teacher help you to make your work better?' Children's understanding of formative assessment', *The Curriculum Journal*, **7**, 2, 185–203.

Twyford, J. and Burden, R. (2000). 'Is it really work? Primary school pupils' conceptions of design and technology as a National Curriculum subject', *Journal of Design and Technology Education*, **5**, 2, 101–5.

Tymms, P. (2001). 'A test of a big fish in a little pond hypothesis: an investigation into the feelings of seven-year-old pupils in school', *School Effectiveness and School Improvement*, **12**, 2, 161–81.

Tymms, P.B. (1997) 'Science in primary schools: an investigation into differences in the attainment and attitudes of pupils across schools', *Research in Science and Technological Education*. **15**, 2, 149–59.

Unwin, L. and Wellington, J. (2001). *Young People's Perspectives on Education, Training and Employment: Realizing their Potential* (The Future of Education from 14+). London: Kogan Page.

Vaughan, N. and Edwards, J. (1993). 'Citizenship in the curriculum: getting started', *Pastoral Care in Education*, **11**, 1, 15–21.

Wade, B. and Moore, M. (1993a). *Experiencing Special Education: What Young People with Special Educational Needs Can Tell Us*. Buckingham: Open University Press.

Wade, B. and Moore, M. (1993b). 'The test's the thing: viewpoints of students with special educational needs', *Educational Studies*, **19**, 2, 181–91.

Watson, A., Stuart, N. and Ferguson, J. (2000). *National Evaluation of Key Stage 4 Work-related Learning Demonstration Projects* (DfEE Research Report 218). London: DfEE.

Watson, A., Stuart, N. and Ferguson, J. (2002). *Evaluation of New Approaches to Work-Related Learning at Key Stage Four* (DfES Research Report 326). London: DfES.

West, A., Hailes, J. and Sammons, P. (1997). 'Children's attitudes to the National Curriculum at key stage 1', *British Educational Research Journal*, **23**, 5, 597–613.

Whitty, G., Aggleton, P. and Rowe, G. (1996). 'Competing conceptions of quality in social education: learning from the experience of the cross-curricular themes.' In: Hughes, M. (Ed) *Teaching and Learning in Changing Times*. Oxford: Blackwell.

Wight, D. and Scott, S. (1994). *Mandates and Constraints on Sex Education in the East of Scotland. Preliminary Study for a Sex Education Initiative. Report to the Health Education Board for Scotland*. Glasgow: Medical Research Council, Medical Sociology Unit.

Wikeley, F. and Stables, A. (1999). 'Changes in school students' approaches to subject option choices: a study of pupils in the West of England in 1984 and 1996', *Educational Research*, **41**, 3, 287–99.

Williams, A. and Bedward, J. (2001). 'Gender, culture and the generation gap: student and teacher perceptions of aspects of National Curriculum physical education', *Sport, Education and Society*, **6**, 1, 53–66.

Williams, A., Bedward, J. and Woodhouse, J. (2000). 'An inclusive National Curriculum? The experience of adolescent girls', *European Journal of Physical Education*, **5**, 1, 4–18.

Williams, C., Stanisstreet, M., Spall, K., Boyes, E. and Dickson, D. (2003). 'Why aren't secondary students interested in physics?' *Physics Education*, **38**, 4, 324–9.

Williams, M., Burden, R., Poulet, G. and Maun, I. (2004). 'Learners' perceptions of their successes and failures in foreign language learning', *Language Learning Journal*, **30**, Winter, 19–29.

Williams, M., Burden, R.L. and Lanvers, U. (2002). ''French is the language of love and stuff': student perceptions of issues related to motivation in learning a foreign language', *British Educational Research Journal*, **28**, 4, 503–28.

Woodhouse, J. (1996). 'So, how do the pupils feel?' *Bulletin of Physical Education*, **32**, 1, 40–5.

Woodward, C. and Woodward, N. (1998a). 'Girls and science: does a core curriculum in primary school give cause for optimism?' *Gender and Education*, **10**, 4, 387–400.

Woodward, C. and Woodward, N. (1998b). 'Welsh primary school leavers' perceptions of science', *Research in Science & Technological Education*, **16**, 1, 43–52.

Woolnough, B. (1994). 'Changing pupils' attitudes to careers in science', *Physics Education*, **31**, 5, 301–8.

Woolnough, B.E., McLaughlin, S. and Jackson, S. (1999). 'Learning by doing – two classroom studies of pupils' preferred ways of learning science', *School Science Review*, **81**, 294, 27–34.

Worrall, N. (2001). 'Testing, testing, testing… investigating student attitudes towards and perceptions of, eleven years of testing and target setting', *Forum*, **43**, 1, 13–18.

Wray, D. (1993). 'What do children think about writing?' *Educational Review*, **45**, 1, 67–77.

Wright, L. (1997). ‘Five-year study on learning in science: let’s listen to the children’, *Primary Science Review*, **46**, 12–14.

Wright, M. (1999). ‘Influences on learner attitudes towards foreign language and culture’, *Educational Research*, **41**, 2, 197–208.

Younger, M. and Warrington, M. (1999). ‘’He’s such a nice man, but he’s so boring, you have to really make a conscious effort to learn’: the views of Gemma, Daniel and their contemporaries on teacher quality and effectiveness’, *Educational Review*, **51**, 3, 231–41.

Appendix 1 – Aims

Aims

The main aim of this work was to review the full body of research into pupils' experiences and perspectives of the curriculum and assessment published from 1989 to date. This years' work thus involved extending the coverage of the review to encompass research published in 2004–2005 and carrying out an overview of the full database of sources. The review aimed to address the following.

a) What research on pupils' experiences and perspectives of the curriculum has been carried out from 1989 to 2005?

b) What research on pupils' experiences and perspectives of assessment and feedback has been carried out since 1995?

c) What research on pupils' experiences and perspectives of careers education and work-related learning has been carried out since 1998?

d) In what ways can the research be categorised in terms of project size, methodology, duration and focus?

e) What are the key findings in the research? More detail would be given about findings which have continuing relevance.

f) Has any work explored gender, ethnicity, special educational needs, age or social and economic status in relation to the pupil perspective on the curriculum?

g) What research is currently in progress or about to start in this area?

Sources

Sources for inclusion in the review were identified from database searches conducted by NFER's library staff. The search strategies employed are outlined in Appendix 2. The searches were run through the same range of sociological, educational and psychological databases as employed in previous reviews, in order to ensure consistency.

In order to address research question g) 'What research is currently in progress or about to start in this area?' details of work in progress or due for publication were gathered through:

- a postal request to relevant universities and colleges of higher education
- a postal request to research organisations and funding bodies
- a search for relevant projects through the Current Educational Research in the UK (CERUK) database.

Appendix 2 – Search strategies and methodology for the review

Study design

This review is of published research literature which informs the body of knowledge on pupils' experiences and perspectives of the National Curriculum. From 2003, two new aspects were introduced to broaden the scope of the review: pupils' perspectives on assessment and on work-related learning. The main focus of the review is on research that has involved directly asking students about their experiences of and attitudes to the National Curriculum. Current research has also been included when appropriate.

General approach

Initial discussions were held with the research team to establish the parameters for the review. Following the initial searches, additional key terms were suggested and the searches were then refined. Discussions held in subsequent years enabled the library to respond to the need for amendments in the strategy as the project evolved; for example, the search strategy for work-related learning was developed from a list of terms and expressions compiled by the research team in consultation with QCA.

Inclusion criteria

Items selected for inclusion in the review met the following criteria:

Type of research

Research that took into account the pupils' experience and perspective and focused on the curriculum (including the whole curriculum, the National Curriculum, individual subjects, assessment, cross-curricular themes and skills, work-related learning).

Target population

The review pertains to pupils from the age of 5 to 16. In the case of work-related learning, search limits were applied to exclude post-sixteen education, except that items concerning 14–19 education were included.

Time and place

Studies in this review date in the main from the introduction of the National Curriculum in 1989; studies on work-related learning date from 1998 onwards. The research geographical coverage is of England, Wales, Northern Ireland and Scotland.

Search strategy

As the primary method of identifying published literature for this review, NFER librarians searched a range of educational, sociological and psychological databases during each phase of the project: ASSIA, British Education Index, Child Data, ERIC and PsycInfo (previously PsycLit), as well as the Library's own internal databases including CERUK (Current Educational Research in the United Kingdom). Other databases which were available in some but not all years of the project were also used: British National Bibliography via Blaise Web (1999); SIGLE (until 2004); International Bibliography of the Social Sciences (in 2003); British Library Inside (in 2005).

Due to limited resources, other recommended means of searching, such as handsearching of journals, were not undertaken.

Search strategies were developed for all databases by using the controlled vocabulary pertinent to each database, under the broad subject headings of *attitudes* and *the National Curriculum*. The searches were developed to maximise consistency across the range of databases and the key terms were presented to the research team for further suggestions. Where no thesauri were available, or the controlled vocabulary included no appropriate keywords, free-text searching was undertaken.

Searches covered the period 1998 to date and were conducted on the same range of databases as the National Curriculum and assessment searches.

The keywords used in the searches, together with a brief description of each of the databases searched, are outlined below ("ft" denotes free-text terms and "?" that terms were truncated to include both singular and plural forms).

1. Pupils' perspectives on the National Curriculum

British Education Index (BEI)

BEI provides bibliographic references to 350 British and selected European English-language periodicals in the field of education and training, plus developing coverage of national report and conference literature.

Terms relating to Attitudes

Adolescent Attitudes
Childhood Attitudes
Expectation?
Expectations of Students
Opinions
Perceptions
Perspective?
Pupil Attitudes
Pupil Experiences
Student Attitudes
Student Experiences
Views

Terms relating to National Curriculum subjects

Algebra Education
Art
Art Education
Art History
Arts Education
Biochemistry Education
Biology Education
Botany Education
Calculus Education

Chemistry Education
Dance Education
Design Education
Drama Education
Ecology Education
English
English Literature
English Studies
English Studies Curriculum
Environmental Education
Foundation Subjects
French
French Studies
General Science
Geography
Geography Education
Geology Education
Geometry Education
German
German Studies
History
History Studies
Italian
Italian Studies
Languages
Literature Studies
Mathematics
Mathematics Curriculum
Mathematics Education
Modern Language Curriculum
Modern Language Studies
Modern Languages
Modern Languages Studies
Modern Mathematics
Music
Music Curriculum
Music Education

Physical Education
Physical Education Curriculum
Physical Geography Education
Physics Education
Poetry Studies
Religious Education
Religious Education Curriculum
Russian
Russian Studies
Science Curriculum
Science Education
Science Education Curriculum
Sciences
Spanish
Spanish Studies
Technology Education
Trigonometry Education

Terms relating to Cross-curricular Themes

Career Education
Careers
Careers and Educational Guidance
Careers Education
Careers Guidance
Citizenship Education
Cross-curricular Approach
Health Education
Health Education Curriculum
Individual Development
PSE
Social Development

Terms relating to the National Curriculum

Core Curriculum
Curriculum
Main Subjects

National Curriculum
National Curriculum Council
Secondary School Curriculum

Attitudes AND National Curriculum subjects
Attitudes AND Cross-curricular Themes
Attitudes AND the National Curriculum

The Educational Resources Information Center (ERIC)

ERIC is sponsored by the United States Department of Education and is the largest education database in the world. It indexes over 725 periodicals and currently contains more than 7,000,000 records. Coverage includes research documents, journal articles, technical reports, program descriptions and evaluations and curricula material.

Terms relating to Attitudes

Adolescent Attitudes
Childhood Attitudes
Childrens [sic] Attitudes
Perspective?
Student Attitudes
Student Expectations
Student Experience
Student Opinion
Student Opinions
Student Perception
Views

Terms relating to the National Curriculum

British National Curriculum
National Curriculum
National Curriculum (England)
National Curriculum (Great Britain)
National Curriculum (United Kingdom)
National Curriculum Council

National Curriculum Council (England)
National Curriculum Council (Great Britain)
National Curriculum for English (Great Britain)
National Curriculum UK

Attitudes AND the National Curriculum

Current Educational Research in the United Kingdom (CERUK)

CERUK is a database sponsored by NFER and the Department for Education and Skills (DfES), with support from the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre). It aims to provide a complete record of current or ongoing research in education and related disciplines. It covers a wide range of studies including commissioned research and PhD theses, across all phases of education from early years to adults.

Terms relating to Attitudes

Childrens [sic] Attitudes
Childrens Expectations
Childrens Opinions
Childrens Perceptions
Pupil Attitudes
Pupil Expectations
Pupil Experience
Pupil Feedback
Pupil Opinions
Pupil Perceptions
Student Attitudes
Student Expectations
Student Experience
Student Feedback
Student Opinions
Student Perceptions

Terms relating to Subjects / Cross-curricular Themes / National Curriculum

Algebra Education
Art Education
Arts Education
Biology Education
Careers
Careers Education and Guidance
Chemistry Education
Citizenship Education
Core Curriculum
Cross Curricular Approach
Cross Curricular Themes
Dance Education
Design Education
Drama Education
English Education
English Language Education
English Literature Education
Environmental Education
Foundation Subjects
French Language
French Language Education
Geography Education
Geology Education
Geometry Education
German Language
German Language Education
Health Education
History Education
Mathematics
Mathematics Education
Modern Foreign Languages
Modern Foreign Languages Education
Music Education
National Curriculum
Personal and Social Education

Physical Education
Physics
Physics Education
Poetry
Religious Education
Science Education
Sciences
Spanish Language
Spanish Language Education
Technology Education

Attitudes AND Subjects / Cross-curricular / National Curriculum

ChildData

ChildData is produced by the National Children's Bureau. It encompasses four information databases: bibliographic information on books, reports and journal articles (including some full text access); directory information on more than 3000 UK and international organisations concerned with children; Children in the News, an index to press coverage of children's issues since early 1996 and an indexed guide to conferences and events.

Terms relating to Attitudes

Attitudes
Children's Views
Views

Terms relating to Cross-curricular Themes

Careers
Careers Guidance
Citizenship
Health Education
Moral Development
Parenthood Education
Personal and Social Education
Sex Education

Terms relating to the National Curriculum

Curriculum
National Curriculum
SATs
Teaching Methods
Technology

Terms relating to National Curriculum subjects

Art
Arts
Dance
Drama
English Language
Environmental Studies
French Language
Geography
German Language
History
Italian Language
Languages
Literature
Mathematics
Music
Physical Education
Poetry
Reading
Science
Spanish Language
Technical Education
Theatre in Education
Writing

Attitudes AND Cross-curricular Themes
Attitudes AND the National Curriculum
Attitudes AND National Curriculum subjects

Applied Social Sciences Index and Abstracts (ASSIA)

ASSIA is an index of articles from over 600 international English language social science journals. The database contains approximately 168,000 records and provides unique coverage of special educational and developmental aspects of children.

Attitudes OR Perspective
AND
Children OR Pupils OR Students
AND
Curriculum OR Curriculum Subjects OR National Curriculum

International Bibliography of the Social Sciences (IBSS)

IBSS is one of the largest and most comprehensive social science databases in the world with coverage dating from 1951 onwards. Current data is taken from over 2400 selected international social science journals and around 7000 books per annum.

Algebra Education
Art Education
Art History
Arts Education
Biochemistry Education
Biology Education
Botany Education
Calculus Education
Career?
Chemistry Education
Citizenship Education
Core Curriculum
Cross Curricular Approach
Dance Education
Design Education
Drama Education
Ecology Education
English Education

English Literature
English Studies
Environmental Education
Foundation Subjects
French AND Education
General Science
Geography Education
Geology Education
Geometry Education
German AND Education
German Studies
Health Education
History Education
Individual Development
Italian AND Education
Italian Studies
Literature Studies
Main Subjects
Mathematics Curriculum
Mathematics Education
Modern Language Curriculum
Modern Language Studies
Modern Languages
Modern Languages Studies
Modern Mathematics
Music Curriculum
Music Education
National Curriculum
National Curriculum Council
Personal and Social Education
Physical Education
Physical Education Curriculum
Physical Geography
Physics Education
Poetry Studies
Pupil? AND Attitude?
Pupil? AND Experience?

Religious Education
Religious Education Curriculum
Russian AND Education
Russian Studies
Science Curriculum
Science Education
Science Education Curriculum
Sciences
Secondary School Curriculum
Social Development
Spanish AND Education
Spanish Studies
Student? AND Attitude?
Student? AND Experience?
Technology Education
Trigonometry Education

System for Information on Grey Literature in Europe (SIGLE)

SIGLE is a bibliographic database covering European non-conventional (grey) literature in the fields of humanities, social sciences, pure and applied natural sciences and technology and economics.

Children? OR Pupil? OR Student?
AND
Attitude? OR Expectation? OR Experience? OR Opinion? OR Perception? OR View?

PsycInfo

This is an international database containing citations and summaries of journal articles, book chapters and technical reports, as well as citations to dissertations in the field of psychology and psychological aspects of related disciplines, such as medicine, sociology and education.

Children? OR Pupil? OR Student?
AND

Attitude? OR Expectation? OR Experience? OR Opinion? OR Perception? OR View?
AND
Population Location = England OR Great-Britain OR Northern-Ireland OR Scotland OR United-Kingdom OR Wales
AND
Curriculum OR Education OR School?

2. Pupils' perspectives on assessment

The following concepts, derived from the British Education Index, were searched for on each database, whether as keywords or free text terms. Further keywords specific to individual databases are indicated against each one below. The same sets of attitude terms are employed for each database as for the National Curriculum searches above.

Ability Tests
Assessment
Assignments
Continuous Assessment
Coursework
Differentiated Examinations
Examinations
Feedback
GCSE
General Certificate of Secondary Education
Informal Assessment
Mathematics Tests
Pupil Evaluation
Reading Tests
School Based Assessment
Science Tests
Self Assessment
Self Evaluation
Standard Assessment Tasks
Standard Grade Examinations
Stress

Teacher Response
Test Anxiety
Tests
Testing

BEI

Assessment terms above AND Attitude terms

ERIC

Additional terms relating to Assessment

Ability Tests (Differential)
Educational Assessment

Assessment terms AND Attitude terms

CERUK

Assessment terms as BEI

Assessment terms AND Attitude terms

ChildData

Additional terms relating to Assessment

GCSE Examinations
SATs

Assessment terms AND Attitude terms

ASSIA

Assessment terms as BEI

Assessment terms AND Attitude terms

IBSS

Assessment terms AND Attitude terms as BEI

Assessment terms AND Attitude terms

SIGLE

Assessment terms as BEI

Assessment terms AND Attitude terms

PsycInfo

Additional terms relating to Assessment

Achievement Measures
Aptitude Measures
Curriculum Based Assessment
Differential Aptitude Tests
Measurement
Test Taking

Assessment terms AND Attitude terms

3. Pupils' perspectives on work-related learning

The following list encompasses the range of concepts compiled by the research team in conjunction with QCA, along with keywords of equivalent scope from the database thesauri. All phrases were searched as free-text terms where they did not correspond to keywords and both hyphenated and non-hyphenated forms were employed.

Work related

Work related activities
Work related contexts
Work related curriculum

Work related education
Work related environment
Work related experience
Work related learning
also Extended work related learning
Work related provision

Work

Work conditions
Working conditions
Work education relationship
Work environment(s)
Working environment(s)
Work practices
Working practices

Work based

Work based education
Work based learning
Work based training

Work experience

Community placements
Industrial visits
Industry days
Part time employment
Part time jobs
Role play
Simulation
Work experience
Work placements
Work shadowing

Links and partnerships

Business education link(s)
Business education partnership(s)
also Education business link(s)
Education business partnership(s)
Industry education link(s)
Industry education partnership(s)
also Education industry link(s)
Education industry partnership(s)

Apprenticeships

Apprenticeships
Modern Apprenticeships
Student Apprenticeships

Enterprise

Enterprise activities
Enterprise education
Enterprise in education
Financial literacy
Mini enterprise
Young enterprise

Work skills

Career(s) related skills
Employability
Employability skills
Key skills
Preparation for working life
Work skills

Cross-curricular themes

(The original searches on cross-curricular themes had already included the terms *Citizenship Education and PSHE*.)

Economic and industrial understanding
Mentoring
Mentoring schemes
National record of achievement
Progress file(s)
Pupil mentors
Record(s) of achievement

Careers education

(The original searches on cross-curricular themes had already included the terms *Careers Education, Careers Guidance and Careers Education and Guidance*.)

Career choice(s)
Career exploration
Career management
Careers advice
Career(s) planning
Careers support
Connexions
Connexions services
Guidance
Labour market information
Self development

Vocational education

Employment training
Increased Flexibility Programme
Lifelong learning
Prevocational courses
Prevocational education
Prevocational training

Sandwich courses
School to work transition
Vocational courses
Vocational education
Vocational training

Attitudes AND Work related terms

Appendix 3 – Glossary of themes

Relevance

The theme of relevance considers pupils' perceptions and constructions of relevance in the curriculum. It encompasses:

- the relative importance of subjects (including subject rankings)
- perceptions of subject status within the curriculum
- academic and vocational relevance (including instrumental/utilitarian views)
- the appropriateness of the curriculum to current life needs (e.g. to personal development)
- the relevance of the curriculum to adult life
- the appropriateness of the context in which subjects are taught, or the contexts to which they refer.

It also includes what pupils value in the curriculum, e.g. using computers. The theme is often associated with gender in the research findings.

Enjoyment

Research on pupils' enjoyment of the curriculum encompasses pupils' subject likes and dislikes and their engagement, motivation, enthusiasm and interest in the different parts of the curriculum. Various 'measures' of enjoyment are considered, including likes, dislikes, favourites, positive attitudes and measures of ability and confidence in order to reveal pupils' affinity towards subjects. The theme is often associated with gender and age in the research findings.

Teaching and learning

This category takes account of the research pertaining to teaching and learning processes and pupils' views on the best conditions for learning. It embraces research on ability groupings, single-sex teaching and what pupils value in a teacher and in teaching styles (e.g. lessons that are fun, environment of trust, etc).

Activity preferences

This category encompasses pupils' preferences for certain types of activity within subject areas. For example, reading and writing within English, speaking and listening in modern foreign languages and so on. Whilst some activities are subject-specific, others span subject areas – for example, practical activity and investigative work.

Subject preferences

The theme of subject preferences and choice includes pupils' rank ordering of preferred subjects (usually in terms of their most favourite and least favourite subjects) and their choice of subjects for key stage 4. It includes findings on factors influencing choice and the subjects that pupils would like to have studied but perhaps did not have the option to do so.

Pupils' understanding of National Curriculum subject areas

Pupils' understanding of National Curriculum subject areas includes findings relaying perceptions of their actual understanding in various subjects, as well as constructions of what the subject means, or how it relates to their understanding in other realms.

Cross-curricular themes

Cross-curricular themes and skills include areas of the curriculum such as PSHE, citizenship, key skills, environmental understanding, economic awareness, cultural understanding and so on. The research includes findings on these areas as discrete provision (e.g. PSHE lessons) or as themes within the curriculum (taught through other subject areas). Research on careers education and work-related learning is now categorised separately.

Careers education and work-related learning

The topics included within careers education and work-related learning link closely to the DfES and QCA 'definitions' of work-related learning as 'learning through', 'about' and 'for' work. The category on careers education pertains to this kind of learning specifically 'through' careers education lessons and guidance and covers learning 'about' and 'for' the full gamut of options available at 16. It includes sub-themes on:

- careers education lessons
- individual careers guidance
- sources of information about careers and post-16 routes
- knowledge about and attitudes towards post-16 routes
- careers skills (including preparation for post-16 routes and decision making).

Work-related learning includes sub-themes, again related to the notions of learning 'through', 'about' and 'for' work:

- work experience and work-based learning programmes
- knowledge about and attitudes towards work
- skills for work (including preparation for working life)
- views on the vocational curricula
- attitudes to self, school and learning as a result of work-related learning.

Assessment

Included in the theme on pupils' experiences and perceptions of assessment are findings relating to national assessment (e.g. GCSEs, SATs, National Curriculum tests), teacher and classroom assessment or testing, issues relating to stress and self-esteem, feedback and the format of assessment (e.g. coursework, examinations, portfolios, continuous assessment, modular courses) and types of questions asked (e.g. multiple choice, long answers etc).

Achievement and ability

The combined themes of achievement and ability include pupils' views on the factors associated with success and achievement; what pupils regard as success; the effort they are prepared to expend (or otherwise) in their work; views on progress – self-reports and awareness of their own progress and the factors involved in 'making progress'; confidence in their academic performance; ability rankings against peers and the labels and values that pupils associate with different levels of ability.

Manageability

The theme of manageability considers pupils' perceptions of the level of difficulty in their work and the amount of work that they are required to do. Included here are findings on various aspects of curriculum delivery that impact on manageability such as pace, pupil groupings, setting by ability and differentiation.

Continuity and progression

This theme embraces research on pupils' experiences of continuity and progression within the curriculum year-on-year and as such highlights implications for continuity at the transition between phases of schooling and between the various key stages. It also includes research on continuity within subjects lesson-to-lesson and pupils' experiences of follow-on, build-on or making progress within curriculum subject areas.

Other researchers' 'definitions' of continuity and progression include:

> *Continuity is concerned with the ways in which the educational system facilitates and structures experience to provide sufficient challenge and progress for pupils in a recognisable curricular landscape.* (Braund and Driver, 2005, p.77)

> *Progression describes pupils' personal journeys through education and the various ways in which they acquire, hone, apply and develop their skills, knowledge and understanding in increasingly challenging situations.* (Braund and Driver, 2005, p.77)

Breadth and balance

This theme pertains to research on breadth and balance *across* the whole curriculum and *within* curriculum subject areas. Included here are findings on the amount of curriculum time afforded to different subject or curriculum areas, the balance between 'academic' and the more 'practical' subjects in the curriculum and the breadth of subject options available, particularly in the key stage 4 curriculum. Findings within subject areas relate to the range of activities or topics covered (e.g. within PE or science) and also consider the issue of breadth versus depth.

Coherence across the curriculum

Research on the theme of coherence covers pupils' learning experience in terms of connections *across* the whole curriculum and internal coherence *within* subject areas. Included here are findings on pupils' recognition (or lack thereof) of interconnections between subject areas (in terms of content knowledge and skills) and the benefits or disadvantages of 'connectedness'.

Curriculum change

This category was originally intended to consider pupils' experiences of curriculum change since the introduction of the National Curriculum (i.e. early 1990s research may have captured this). As the length of time from this date (1988) increases, the research in this field has inevitably dwindled. However, with the introduction of other initiatives and changes to the curriculum throughout the 1990s, other research has also been included here (for example, on the literacy hour).

Out-of-school influences

This category takes account of the out-of-school experiences that are seen to influence pupils' attitudes or understanding in the curriculum. Areas of influence include magazines, media, friends, parents, participation in out-of-school sports and so on.

Perceptions of effects and outcomes

Research in this category entails the gathering of pupils' perceptions of the effects and outcomes of education on themselves. It emerged as a theme in the research part way through the review process, as curriculum-based research involving pupils' views on the impacts of education on themselves was identified.

Values education

This theme considers pupils' experiences and perceptions of values education *per se* as imparted by the curriculum, e.g. social and moral messages (beyond that associated with citizenship and PSHE which are reported under cross-curricular themes). It also includes findings from the curriculum-based research which relay how the school environment and ethos contribute to pupils' value sets.

Key background variables

This category encompasses a set of underlying variables in the research. Areas identified as key to the findings in some research include pupils' gender, age, ethnicity, level of ability, special educational needs, social or economic status, as well as school type (e.g. mixed-sex or single-sex) and the region/location of the research.

Appendix 4 – Substantive typology

1. Breadth and balance (z1)[1]
2. Coherence across the curriculum (z2)
3. Continuity and progression (z3)
4. Relevance (z4 and z11b)
5. Enjoyment (z5)
6. Manageability (z6)
7. Views on assessment (z7)
    a) national assessment (z7a)
    b) teacher/classroom assessment (z7b)
    c) stress and self-esteem (z7c)
    d) feedback (z7d)
    e) format of assessment (z7e)
8. Views on achievement (z8); views on ability (z9)
9. Cross-curricular themes and skills (z10)
10. Values education (z11)
11. Perceptions of effects and outcomes of education (z18)
12. Views on curriculum change (z12)
13. Subject preferences and choice (z13)
14. Activity preferences (z14)
15. Teaching and learning (styles, processes) (z11c)
16. Pupil understanding of National Curriculum subject areas (z15)
17. Out-of-school influences on pupils' attitudes to curriculum (z16)
18. Pupil perception data for school improvement and school effectiveness (z11e)[2]
19. Careers education (z19)
    a) Careers education (z19a)
    b) Individual careers guidance (z19b)
    c) Sources of information on careers and post-16 routes (z19c)
    d) Knowledge about and attitudes towards post-16 routes (z19d)
    e) Careers skills (z19e)
20. Work-related learning (z20)
    a) Work experience (z20a)
    b) Views on the vocational curriculum and associated qualifications (z20b)
    c) Knowledge about work (z20c)
    d) Skills for work (z20d)
    e) Impact on attitudes towards self, school and learning (z20e)

21. Key variables: (z17)
    a) gender (z17a)
    b) age (z17b)
    c) ethnicity (z17c)
    d) SEN (z17d)
    e) social class/socio-economic status (z17e)
    f) school type (z17f)
    g) region (z17g)
    h) ability (z17h)

Notes

1 Numbers in brackets (z…) refer to codes used in the original typology on the database.

2 Not reported here.

Appendix 5 – Methodology typology

(a) Broad type of methodological approach

1. Quantitative survey
   1a. quantitative methods only (e.g. exam results), no survey
2. Quantitative case study
3. Qualitative case study
4. Qualitative survey
5. Case study with quantitative and qualitative data
6. Survey with quantitative and qualitative data
7. Both case study and survey
8. Literature review

(b) Data collection methods (not mutually exclusive)

1. rating scales
2. observation
3. individual interviews
4. pair interviews
5. group interviews/discussions/focus groups
6. questionnaire
7. open-ended questions
8. task-based research
9. evaluation sheets
10. test results
11. pre- and post-measures

(c) Pupil numbers

1. not specified
2. under 50
3. 50-100
4. 101-250
5. 251-750

6. 751-1500
7. 1501-3000
8. 3001+

(d) School numbers

1. 1
2. 2-5
3. 6-10
4. 11-20
5. 21-50
6. 50+

(e) Year Group

1. Y1
2. Y2
3. Y3
4. Y4
5. Y5
6. Y6
7. Y7
8. Y8
9. Y9
10. Y10
11. Y11
12. includes post-16
13. other/not specified
14. retrospective views

(f) Duration

1. one-off
2. longitudinal cohort study
3. repeated measures (e.g. phases, repeated instruments but with different pupils etc)

4. 1 term
5. 1 year
6. 2 years
7. 3 years
8. 3-5 years
9. 5+years

(g) Background variables (as presented in reports)

1. gender
2. age
3. ethnicity
4. SEN
5. social class/socio-economic status
6. school type
7. region
8. ability
9. post-16 destination

(p) Purpose

1. Classroom experience/learning
2. Curriculum delivery and content
3. GCSE/assessment
4. Motivation and achievement
5. Pupil voice on effectiveness
6. School experience
7. Other

(s) Subject

1. All subjects
2. Art
3. Arts (The)
4. Careers education

5. Citizenship
6. Drama
7. English
8. Environmental education
9. Geography
    - Earth science
10. History
11. IT
12. Mathematics
13. Modern Languages
    - French
    - German
14. Music
15. PE
16. PSHE
17. RE
18. Sciences
    - Astronomy
    - Biology
    - Chemistry
    - Physics
19. Technology (including Design and Technology)
20. Work experience
21. Work-related learning

Appendix 6

Selected examples of methodologies employed in the research

Reference	Methodological approach and comments
Duffield *et al.* (2000)	Pupil groups were arranged in order to aid manageability of the research. The single-sex, similar attainment level groupings were formed in order to facilitate ease of discussion, not, as in other cases, to draw contrasts by attainment or gender.
Fielding *et al.* (1999)	Part of the body of research identified on the use of pupil perception data to effect change. The researchers discuss methodological questions concerning the adult/interviewer interpretation of primary pupil perceptions and how these can best be resolved. Discrepancies in methodology/data transcription and differences between the different researcher-pairs are noted and considered.
Fisher and Evans (2000)	This study used pre- and post-event tests and questionnaires to gauge the impact of a French exchange visit on competence and attitudes. A match-group of pupils not participating in the exchange also completed the tests and questionnaires (similar to having a control group). The study points out that while the impact of foreign visits has been investigated at sixth form and university level, there is little research in this field with pupils in key stages 3 or 4. In addition, few other studies seeking pupils' views seem to use this quasi-experimental approach (i.e. with a 'control' group – one other recent example is Nundy (1999)).
Francis and Greer (1999b)	A study to develop statistical analysis techniques, in the field of pupils' attitudes towards science, with gender and age specifically input at the methodology stage. The researchers suggest that their instrument, using the 20 'affective domain' items, gives a coherent picture of pupils' attitudes, independent of their cognitive and behavioural perceptions of science.

Reference *(cont'd)*	Methodological approach and comments *(cont'd)*
Harland *et al*. (2000)	This study takes a different methodological approach from many other studies, in that the interviewees in the case-study schools were not selected as a sub-sample of the survey pupils. In many other studies, the opposite would seem to be true – an interview sub-sample being taken from the main survey sample.
McCallum and Demie (2001)	This study highlights the use of Census data as a wealth of available information for educational research – especially on social class and other background details. The Census information holds data on home district, which is not accounted for in the measure of free school meals more usually used. Census information on home ownership, educational qualifications, unemployment, ethnicity and overcrowding is thought to enhance existing information normally held by schools. Further work using a wider postcode range is suggested, in order to explore the use of Census data and its viability as a tool in educational research.
McCallum *et al*. (2000)	This study piloted a method to investigate young pupils' views on themselves as learners, by using four statements written on four cards. The statements described how children learn: 'teachers stand in front of the class and tell them things'; 'they start to think about what other people are saying'; 'they are given the chance to experiment and use apparatus'; 'their brains are ready'. Pupils were asked to respond in various ways to each card and finally to make up their own similar statement to best describe how they learnt.
Murray and Reiss (2005)	A student-led review of the science curriculum. A web-based questionnaire was designed by 16–19 year olds who had completed their GCSEs the summer before. The consultation process involved: suggestions for questions from over 350 students at regional meetings; a national student group to finalise the questionnaire and a student group who helped with analysis and reporting. A total of 1493 responses were obtained from young people within six weeks of posting on the web.

Reference *(cont'd)*	Methodological approach and comments *(cont'd)*
Osborne and Collins (2000)	One of the few studies to mention its intention to be representative of the population by taking samples from across the country. Interview data was analysed using a computer software package to identify themes and issues. Interestingly, this is one of the few items of recent research in science to draw out themes based on the pupils' words (such as relevance, rushed curriculum, topics of interest, content-dominated curriculum), rather than the more generic terms such as 'interest', 'enjoyment', 'importance' prevalent in other items.
Pell and Jarvis (2001)	A study to develop reliable attitude scales for use in science. A pilot revealed reliable scales for liking school, pupil as an independent investigator, science enthusiast, the social context of science and science as a difficult subject.
Rickinson (1999)	This study's methodology involved looking for the best way into and through the data. The study was based on observations, impression sheets and interviews with pupils on people-environment issues in geography. The approach involved finding a 'values-rich' or 'controversial issues' lesson on which to base the analysis. A five-step process then emerged as the most appropriate way through the data, involving analysis of the lesson for teacher and pupil interaction, task-rich aspects, subject-rich interaction and then comparing and contrasting teacher and pupil data. The researcher asks whether values-rich episodes might be a more useful unit of analysis than such lessons. He also highlights the need to base further research on pupil-responses-first as opposed to using teacher-responses-first, against which to measure other responses.
Sanderson (2001)	This study aims to develop reliable attitude scales in dance. Factor analysis and SPSS were employed to analyse the pilot scales, from which four groups of statements were declared reliable: ballet, dance and dancers in general, male dancers and dance performances.

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