There are many paths to success

UNIVERSITY OF EXETER

The impact of practical and 'vocational' learning on academically-able young people aged 11–16

A report for the Edge Foundation

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and Dr Sue Sing

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Foreword
by Lord Baker of Dorking

The secondary school curriculum provides surprisingly little time for learning by doing.

As this important report by the University of Exeter makes clear, the reasons for this can be traced back to the 19th century. Grammar schools, public schools and universities established a hierarchy of subject knowledge which presumed that able young people would be best served by listening, reading, writing and reciting; children less able to thrive in this environment would be prepared for toil in the fields and the factories. This thinking was further enshrined in the Secondary Regulations of 1904 and the school certificate of 1917.

As Secretary of State, I firmly believed that all young people should experience some learning by making and doing. My first policy initiative was to introduce City Technology Colleges, based on the premise that a modern economy requires people capable of exploiting technology to the full. I also launched the national curriculum, which included – for the first time – a requirement to study Design and Technology. It was a question of educating the young of today for the jobs of tomorrow.

Twenty five years on, it still is.

Of course, English and maths provide the foundation of any young person's education. It is equally important for them to understand science and their place in the world, which is why history, geography and foreign languages continue to have a central place in the curriculum. But the challenge remains: how do we nurture new generations of engineers, technologists and inventors?

In 2010, Edge published 'Bodies of Knowledge', a survey of practical and vocational education (PVE) in the United Kingdom. Bill Lucas, Guy Claxton and Rob Webster looked for research into the impact of PVE and found remarkably little. To the extent that the subject has been researched at all in this country, it has very largely been in the context of young people not in education, employment or training – the NEET group.

That is why Edge commissioned this new research from the University of Exeter. We asked Professor Richardson and Dr Sing to consider whether practical and vocational learning has any positive or negative effect on '*academically-able*' students, in terms of their motivation, achievement, choice of post-16 learning routes and awareness of careers. The working definition of 'academically-able' included all students who achieve above-average standards at age 11 and 14, and are expected to secure above-average results at 16.

William and Sue found that practical and applied learning at school has a strong and positive effect on the motivation and achievement of academically-able students. However, they also found that a great majority of these students gravitate to more abstract and analytical learning as they progress through the teenage years.

It is clear from this that many young people do equally well in English, history, engineering and design. However, our education system steers them firmly in one direction rather than the other. The report explains that this deep-seated bias can be traced back directly to the Victorian hierarchy of learning mentioned earlier.

University Technical Colleges will help redress the balance. Each will have two technical specialisms such as engineering, food technology and product design. Students aged between 14 and 18 will divide their time between practical, hands-on learning in their chosen specialist area, and a broad and balanced curriculum covering English, maths, science, humanities and languages.

However, UTCs cannot and should not work in isolation from the rest of secondary education. It is vitally important for all young people to experience both academic and hands-on learning so they can make informed choices at 14, 16 and 18. It is equally important for choices to be presented fairly, giving young people the right to choose an academic route, a technical/vocational route, or a pathway that combines the best of both. The modern world, the modern economy and notions of social justice demand nothing less.

Lord Baker of Dorking
Chair, Edge Foundation

Executive summary

The research
The aim of the research reported here was to assess whether practical and vocational learning at school has any positive or negative effect on students':

- motivation
- levels of achievement
- choice of post-16 learning routes; and
- awareness of (and attitudes towards) a variety of career options.

We believe this to be first UK study to investigate these themes through the attitudes and outlooks of 'academically-able' students across a range of varied schools. Neither have we found similar studies which focus centrally on types and styles of learning in order to probe young people's enjoyment of school, motivation to succeed, learning preferences and plans for the future.

Empirical fieldwork took place in six schools in England and Wales with average or above average cohort-wide attainment: two 11–18 comprehensive schools in Wales; two 11–16 comprehensive schools in England; and two 11–18 selective, single-sex grammar schools in England (one admitting boys, the other girls).

Questionnaires were administered to purposive, stratified samples of students in each school who were in their final year of Key Stage 3 (n= 57) and Key Stage 4 (n= 113). Focus groups were also convened in each school. In addition, interviews were conducted and transcribed with 29 school staff in order to elicit background information about each school, its prevailing culture and curriculum, and understand its detailed procedure for providing students with information, advice and guidance.

The focus of the fieldwork was the attitude and outlooks of students aged 12–16 in three related areas. The detailed findings in relation to these three areas are reported as follows:

- Enjoyment of school and motivation in different types of learning.
- Considerations and challenges when making 'options choices' within the curriculum.
- Plans for after leaving school.

This empirical research shows that 'academically-able' students in Key Stages 3 and 4 value physical, expressive and experiment-based learning and place them well above more analytical forms of learning (especially 'writing') for enjoyment. A very large majority consider that learning with practical elements is more (or just as) important as mandatory subjects such as English and maths. Few (even in the very high attaining grammar schools) chose traditional analytical subjects as their preferred types of learning. These headline findings were not affected by the type of school attended (selective/non selective entry, higher/lower overall attainment, Welsh/English). These results were similar to those of previous studies, which have researched 'mixed-ability' samples of school students.

Regardless of the type of school they attended or the type of Key Stage 4 programme they followed, therefore, 'academically-able' teenagers taking part in this research enjoy their school learning and value practical learning just as much as more abstract forms.

However, students taking part in this study mainly expect to follow traditional subject learning post-16. The processes at work here include both the reinforcement effect of prior high attainment and a readiness to see the vocational value of traditional subject learning in terms of deferred reward.

The research in context: historic continuities in thinking about the secondary school curriculum
There remains a strong set of connections, unbroken from the later nineteenth century (and found among the students in this study), between later specialisation; concepts such as 'merit' and 'ability'; and success in those public examinations in traditional subjects (e.g. A-level and undergraduate degrees) designed to sort for the higher level occupations.

Section 4 of this report draws on an extensive literature review of historical continuities in thinking about the secondary school curriculum in England and Wales, and procedures currently used in schools to measure student ability.

19th century definitions of merit and ability were largely worked out among universities, public schools and reformed grammar schools. Leadership roles, at home and overseas, were reserved for the gentlemanly products of the public schools and Oxbridge. At the same time, Britain was, by international standards, a very late provider of universal elementary education for the working poor.

Local education authorities were established in 1902. One of their tasks was to determine which children aged 10–14 should proceed to selective secondary schools. Many introduced IQ-style psychometric tests alongside scholarship examinations and interviews. As psychometric tests continued to be refined, test questions increasingly took on the characteristics of tests in certain curriculum subjects – maths and language in particular.

Secondary school selection reached its peak in the 1950s. Tests were now used as a predictive instrument: that is, to identify children likely to excel in tests based on the grammar school curriculum. Along with this, the GCE A-level examination, introduced in 1951, placed the spotlight firmly on attainment in individual subjects as the route to university. Inevitably, this led to a common association of 'intelligence' with the grammar school curriculum, A-levels and university entry.

The major curriculum task during 1965–80 was to fuse the two curricular traditions inherited by comprehensive schools: the grammar – subject-based, historic and prestigious – and the modern – non-examined, of twentieth-century origin and experiential. The debate was fuelled by historic assumptions about 'ability' and 'merit'. Comprehensive schools started to make widespread use of streaming, banding or subject setting by ability, based on test or attainment scores; and very soon, the practical curriculum came to exist as a junior partner and poor relation alongside revered academic traditions.

Today, almost all 11–14 year-olds in England follow a subject-based curriculum which anticipates 14–16 programmes of learning dominated by traditional GCSE subjects. However, mental testing is probably as prevalent now among 10–12 year-olds as it was during the 1950s, chiefly because tests help predict achievement in GCSE exams.

Curriculum areas that derive their prestige from nineteenth century conceptions of 'merit' and 'ability' still hold sway, leaving practical, technical and 'vocational' abilities trailing in the wake of abstract and analytical reasoning.

Some conclusions

Our conclusions draw on both the empirical research and the historical review, and cover four themes:

- the vocational purposes of school;
- the role of the universities (and of employers);
- the meritocratic curriculum in the comprehensive secondary school;
- the search for 'parity of esteem' between grammar and modern/technical education.

In principle, all school education is vocational. However, the term 'vocational' has come to be used to denote particular subjects and styles of learning which are generally accorded lower status than so-called 'academic' learning. The terminology of education in this area is inaccurate and, as a result, frames debates and policies that are bound to be muddled.

Modern ideas about education continue to be dominated by 19th century concepts of merit and ability, which were based on abstract reasoning rather than the ability to design and make things or solve practical problems.

Technologies used to measure intelligence are widely used in schools. They are closely related to attainment tests in 'core' subjects and are used as a way of predicting likely success in traditional GCSE subjects. This has the effect of treating other forms of ability as second-best.

Similarly, achievement in traditional subjects is widely used when selecting candidates for high-status university places and jobs, while technical and 'vocational' qualifications have largely failed to achieve the same currency.

Taken together, these findings raise a fundamental question: to what extent does the secondary school curriculum in England and Wales remain well-suited to contemporary conditions?

One argument, derived rather uncertainly from concepts of social justice, is that 'multiple intelligences' matched to personalised learning styles might establish new, more 'inclusive' currencies of merit.

A second argument points to global economic change. A significant shift of capitalism to the East is seen as likely to generate within Britain (and similar economies) huge structural change on a scale last seen in the nineteenth-century. Here, the argument for curricular reform would relate to a recasting of the vocational purpose of schooling. From the 1830s to the 1850s one educational response to large-scale industrialisation was to transform and redefine the grammar school and university curriculum.

On this reading, some of the existing hierarchies in education constitute part of a wider problem. Included here might be the pecking order of contemporary undergraduate curricula, and the channelling effect this has on secondary education. Some of the other assumptions, habits and routines of secondary schooling could also be debated, such as the mislabelling of 'vocational' learning and its widespread association with the lower-attaining student. Finally, it might be time to question the subject boundaries of the 19th and 20th centuries and their associated working methods.

Chapter 1
Introduction

The research brief

1.1. The research on which this report is based was funded by Edge and took place between September 2009 and August 2010. The brief set by the project funder was: 'to explore whether practical and vocational learning at school has any positive or negative effect on students'
- motivation;
- levels of achievement;
- choice of post-16 learning routes; and
- awareness of (and attitudes towards) a variety of career options'.

1.2. Following a tendering process, the project was awarded to the Graduate School of Education at the University of Exeter under the directorship of Professor William Richardson.

1.3. Resources available for the study were a project director, a research fellow employed part-time for 12 months and a consumables budget sufficient for the sound execution of the project design. Due to the complexity of the empirical part of the study relative to the budget, most of the analysis and report writing was conducted after the formal funding period had ended.

Structure of the report

1.4. Section Two describes the design of the empirical aspect of the project, including its aim and scope, the school and student samples employed in the fieldwork, the research methods used and a note on the strengths and limitations of the fieldwork design.

1.5. The findings of the fieldwork are set out in Section Three. These are centred on the responses of students aged 12 to 16 in England and Wales in six varied schools. Three interlinking themes are explored:
- enjoyment of school and motivation in different types of learning;
- considerations and challenges when making 'options choices' within the curriculum; and
- plans for after leaving school.

1.6. The successful tender for the project included a detailed assessment of the research context including historical trends, recent patterns of provision in England and Wales, and procedures currently used in schools to measure student ability. Section Four of the report presents this background analysis in a revised and extended form.

1.7. Section Five provides a discussion of the results. By relating our empirical findings to the historical and contextual analysis provided in Section Four, the implications of the project as a whole are assessed and conclusions are drawn.

Chapter 2
The research design

Aim and scope of the empirical research

2.1 The aim of the empirical aspect of our research project was to explore whether, in 2010, practical and 'vocational' learning at school was having any positive or negative effect on students'
- motivation;
- levels of achievement;
- choice of post-16 learning routes;
- awareness of (and attitudes towards) a variety of career options.

2.2 The resulting research took the form of a small-scale, mixed-methods study. Resources available were a project director (Professor William Richardson) and a research fellow employed part-time for 12 months (Dr Sue Sing).

2.3 As part of the tendering process a substantial contextual analysis was undertaken and this assisted the project team in considering how to design the empirical part of the project. The project director was also much assisted in this by discussion with the other members of the Exeter tendering team: Professor Bob Burden, Professor Wendy Robinson and Dr Gill Haynes.

2.4 The design of the empirical research was also informed in important ways by the extensive background reading and analysis undertaken for Section Two of this report, along with the requirements and outlooks of the funder.

Age group and definition of key terms

2.5 The tender specified that the focus of the study should be the effect of practical and vocational learning on 'academically-able students in the UK, particularly during key stages 3 and 4'.

2.6 Working definitions of some key terms were provided in the tender document and these informed our thinking about research design.
- *Academically-able*: students who achieve above-average standards at age 11 and 14, who are expected to secure above-average results at age 16;
- *Practical learning*: learning that is 'for real' (including working with experts and practitioners from outside school or college) and learning that combines theory with practice by working on projects that have clear and direct connections with the outside world;
- *Vocational learning*: learning linked to a particular job or career (including learning with a focus on developing the skills needed to carry out practical tasks in the workplace, supported by relevant background knowledge).

Six secondary schools: the school sample

2.7 Within the resources available, sampling of schools and of students within chosen schools were the central design decisions to be made. These were influenced by cost (fieldwork in Scotland and Northern Ireland was beyond our resources) and by identification through background research of various groups of high-attaining students known to be undertaking a significant amount of practical/'vocational' learning in 2007.[1]

2.8 On grounds of complexity and cost we also ruled out working in independent schools but, by selecting a mix of selective and comprehensive state-maintained schools in England and Wales, we were confident of reaching at least five out of seven target student populations.[2] As a result, the school sample comprised:
- two 11–18 comprehensive schools in Wales;
- two 11–16 comprehensive schools in England; and
- two 11–18 selective, single-sex grammar schools in England (one admitting boys, the other girls).

2.9 Schools were selected against a number of criteria:
i) those with patterns of participation well matched to our target student populations (notably those studying for: the Welsh Baccalaureate Intermediate Diploma; the Level 2 (English) Diploma; vocational

1. We estimated these groups to comprise *c.*36% of the age cohort across England and Wales, of whom *c.*4% were securing high attainment in a major 'vocational' award, see Richardson, 2009b.

2. See paragraph 2.9.

Table 1 **Schools taking part in the research: age range and type**

	Country	*Students on roll (and in sixth form)*	*Age range and type*	*GCSE results**	*Free school meals†*
School A	England	1,020 (–)	11–16 non-selective	44%	46%
School B	England	1,284 (–)	11–16 non-selective	42%	11%
School C	England	1,008 (430)	11–18 (single sex) selective	99%	
School D	England	751 (191)	11–18 (single sex)	98%	5%
School E	Wales	969 (158)	11–18 non-selective	60%	
School F	Wales	1,365 (316)	11–18 non-selective	45%	12%

**England*: those securing 5 Grades A*-C including English and Maths in 2008 (national average in 2008: 48%)
Wales: those securing GCSEs in maths, science and English/Welsh, in 2007 (national average in 2007: 40%)
†*England*: students eligible in 2004 (national average in 2004: 17%) (DCSF, 2004)
Wales: school inspection reports, 2008 (national average in 2008: 16%)

GCSE (double) awards; or other 'vocational' awards such as BTEC;

ii) those in England studying mainly or solely traditional GCSE subjects in Key Stage 4 who had access to structured curriculum activities of a practical/'applied' nature (for example, due to a school's specialist status);

iii) those with higher attainment than the national average across their student body as a whole.

2.10 The six schools that subsequently took part were identified through various networks accessible to the project team, notably the national network of education-business partnerships and advisers and officers at the Welsh Joint Education Committee and at the Specialist Schools and Academies Trust. The overall research design was provided with ethical approval by the Graduate School of Education at the University of Exeter, anonymity being guaranteed to participating schools.

2.11 Characteristics of the resulting sample of schools are summarised in Table 1 (above) and Table 2 (overleaf).

2.12 The sample of six schools met fully the criteria set out in paragraph 2.9, with two relatively minor exceptions. First, the raw GCSE scores of Schools A and B were below the national average for England (which was 48% in 2008). However, as these were both schools with an Applied Learning specialism, and as our student sampling method meant that we would be working with those among the highest attaining 50% in each school (see paragraphs 2.19–20, below), we felt justified in including these schools in a study of 'academically-able' young people. A further advantage of including them was that they enhanced a sample that was diverse, both educationally and demographically, and might allow for more graphic comparison of data collected from schools with very different profiles. The second departure from our initial school sampling criteria concerned the Key Stage 4 curriculum provided at one of the two grammar schools. In School C Key Stage 4 students could only take GCSEs. To identify a group for our study deemed to be following programmes with 'vocational elements', the school identified high-achieving individuals who were pursuing one or more subjects that involve a high coursework component (60%-100%: e.g. IT, Art, Design & Technology).

Table 2 **Schools taking part in the research: further characteristics**

	Country	*Setting*	*SEN with statements*	*Curriculum*
School A	England	Urban (large city); strongly 'multi-ethnic' student intake	7%*	Applied Learning specialism; range of Diplomas and applied GCSEs offered at KS4
School B	England	Urban (small city); strongly 'white British' student intake	5%*	Applied Learning specialism; range of Diplomas and BTEC courses offered at KS4
School C	England	Town in densely-populated county; strongly 'white British' student intake	1%*	Only GCSEs available at KS4; Diplomas offered in the Sixth Form
School D	England	Town in rural county; strongly 'white British' student intake	2%*	Engineering specialism; range of D&T-related GCSEs offered at KS4
School E	Wales	Rural; strongly 'white British' student intake	2%†	Welsh-medium school; Welsh Bac taken by all; BTEC and other non-GCSE courses offered at KS4
School F	Wales	Town in rural county; strongly 'white British' student intake	n/a	English medium school; BTEC and other non-GCSE courses offered in KS4

*DCSF performance tables, 2008
†Inspection report 2008

Profiles of the schools

2.13 **School A** is a mixed-sex 11–16 English comprehensive community school based in an urban (large city) setting characterised by strong 'multi-culturalism'. It is a non-selective secondary school, its admission procedure being determined by criteria specified by the local authority. Students leave at the age of 16 and most proceed to variety of local school sixth forms and colleges. In 2004, the school became the first in the local authority to achieve specialist status as a Business and Enterprise college. As a result, it specialises in Business as well as other related subjects such as Maths, ICT and manufacturing. After successfully achieving a number of criteria, the school had adopted a second specialism: Applied Learning. Other features:

- compulsory subjects to be studied in Key Stage 4 are English, Maths, Science, PSHE, PE and RE;
- the remainder of the Key Stage 4 curriculum comprises a choice of three other subjects/courses taken from a selection of single and double options;
- subject/course options include a selection of Diplomas and applied GCSEs: applied business, applied health and social care, ICT, applied leisure and tourism and applied manufacturing.

When compared across the six schools in the study, publicly available data showed School A to have:

- the second lowest measure of average formal attainment at GCSE (a figure slightly below the national average) (note: when comparing across our six schools, the English and Welsh measures are slightly different – see paragraph 2.11, above);

- by far the highest number of students in receipt of free school meals (2.5 times the national average).

Students in our sample (10 at Key Stage 3 and 19 at Key Stage 4) provided data about School A which we were able to compare directly to the other schools in our sample.

- *Enjoyment of learning at Key Stage 3*: 5th= out of the six schools (50% of students said that they enjoyed 'most' or 'everything' done in school timetable time).
- *Enjoyment of learning at Key Stage 4*: 5th out of the six schools (58% of students said that they enjoyed 'most' or 'everything' done in school timetable time).
- *Extent to which enjoyment of learning in Key Stage 4 had increased compared to Key Stage 3*: 6 th out of the six schools (enjoyment had increased for 32% of these students).

2.14 **School B** is a mixed-sex 11–16 English comprehensive community school based in an urban (small city) setting characterised by a predominantly 'White British' population. The head teacher describes the school as "very mixed, socially… an area which has traditionally had low educational aspiration. Our catchment area has a very low number of professional background families". The school is a specialist Technology college, with an Applied Learning specialism. Other features:

- the school also offers several Diploma courses and BTEC awards at Key Stage 4 (both at school and off-site). As a Technology college, it has four specialist subjects: Science, IT, Mathematics and Design & Technology;
- a large range of A-level subjects and 'vocational' courses is offered at the local college of further education to which most students at School B progress, including construction, motor vehicle, hairdressing, beauty therapy, public services, child care and learning development (the latter are both double awards).

When compared across the six schools in the study, publicly available data showed School B to have:

- the lowest measure of average formal attainment at GCSE (a figure slightly below the national average);
- the third highest number of students in receipt of free school meals (a figure slightly below the national average).

Students in our sample (8 at Key Stage 3 and 20 at Key Stage 4) provided data about School B which we were able to compare directly to the other schools in our sample.

- *Enjoyment of learning at Key Stage 3*: 4th= out of the six schools (63% of students said that they enjoyed 'most' or 'everything' done in school timetable time).
- *Enjoyment of learning at Key Stage 4*: 6th out of the six schools (55% of students said that they enjoyed 'most' or 'everything' done in school timetable time).
- *Extent to which enjoyment of learning in Key Stage 4 had increased compared to Key Stage 3*: 4th out of the six schools (enjoyment had increased for 65% of these students).

2.15 **School C** is a single-sex English selective grammar school for boys up to the age of 16, with a mixed sixth form thereafter. Based in a predominantly 'White British' town in a densely populated county, the school introduced an accelerated curriculum in 2002/03. The school admits only those students who, in Year 6, pass the Local Authority's '11+' selection procedure, designed to identify the 25% highest-scoring students in verbal reasoning tests and subject examinations in English and Maths. The head teacher stated 'we are a 70% first generation grammar school and have the lowest socio-economic distribution of any of the selective schools in the area'. The school is a Specialist Language College, with a second specialist designation in Science. Other features:

- all students pursue an accelerated curriculum program, whereby Key Stage 3 is condensed into Years 7 and 8 and Key Stage 4 comprises Years 9 and 10;
- in Key Stage 4, all students study English, Maths, Science, Religious Studies, Personal Development, PE and one modern foreign language;
- the students choose an additional three subjects to make up the remainder of their curriculum;
- Diploma courses are available to students only in Key Stage 5. The school does not offer BTEC or similar courses as part of the Key Stage 4 curriculum.

When compared across the six schools in the study, publicly available data showed School C to have:

- the highest measure of average formal attainment at GCSE (a figure very significantly above the national average);
- The lowest number of students in receipt of free school meals (a figure well below the national average).

Students in our sample (10 at Key Stage 3 and 20 at Key Stage 4) provided data about School C which we were able to compare directly to the other schools in our sample.

- *Enjoyment of learning at Key Stage 3*: 2nd out of the six schools (80% of students said that they enjoyed 'most' or 'everything' done in school timetable time).
- *Enjoyment of learning at Key Stage 4*: 4th out of the six schools (60% of students said that they enjoyed 'most' or 'everything' done in school timetable time).
- *Extent to which enjoyment of learning in Key Stage 4 had increased compared to Key Stage 3*: 1st out of the six schools (enjoyment had increased for 80% of these students).

2.16 **School D** is a single-sex English selective grammar school for girls. The intake comprises students from over 50 primary schools in the locale, at least two thirds of which are in a predominantly rural area. The overall socio-economic background of the students is classed by the head teacher as being 'well above average'; the majority of students are 'White British' with approximately 12% being from other 'ethnic' backgrounds. The school has Foundation status, is a specialist Engineering school and is a Leading Edge school. Through the engineering specialism the head teacher says it is the school's aim "to challenge gender stereotypes and prepare able young women for professional and leadership lives in the 21st century". Other features:

- an accelerated curriculum operates whereby Key Stage 3 is condensed into Years 7 and 8, with Key Stage 4 comprising Years 9 to 11;
- students make curriculum choices at the end of Year 8, Year 9 and Year 10.
- from Year 9 onwards, Key Stage 4 students must study English Language and Literature, Maths and Statistics, Religious Studies, PE, PSHCE, Biology, Chemistry and Physics, one modern foreign language and one subject chosen from Product Design, Food Technology, Engineering or Systems and Control. Students have a choice of two additional GCSE subjects;
- in Year 11, students may pursue some AS-level study together with enrichment courses. The 'vocational' student group in this study comprised ten girls who were all studying Engineering; the school offers this course as an applied GCSE.

When compared across the six schools in the study, publicly available data showed School D to have:

- the second highest measure of average formal attainment at GCSE (a figure very significantly above the national average);
- the second lowest number of students in receipt of free school meals (a figure well below the national average).

Students in our sample (10 at Key Stage 3 and 20 at Key Stage 4) provided data about School D which we were able to compare directly to the other schools in our sample.

- *Enjoyment of learning at Key Stage 3*: 5th= out of the six schools (50% of students said that they enjoyed 'most' or 'everything' done in school timetable time).
- *Enjoyment of learning at Key Stage 4*: 2nd out of the six schools (75% of students said that they enjoyed 'most' or 'everything' done in school timetable time).
- *Extent to which enjoyment of learning in Key Stage 4 had increased compared to Key Stage 3*: 3rd out of the six schools (enjoyment had increased for 75% of these students).

2.17 **School E** is rurally situated in Wales. It is an 11–18 mixed-sex, Welsh-medium community comprehensive school. All teaching to the end of Year 11, with the exceptions of Mathematics and Science, takes place in Welsh. The school serves a broad and socio-economically mixed catchment area, with the intake coming from approximately 30 primary schools and being predominantly 'White British'. Other features:

- Key Stage 4 learning is framed within the Welsh Baccalaureate. Core subjects are Welsh, English, Maths and Science and core Foundation subjects are the Welsh Baccalaureate, RE, PE and IT;
- students choose an additional four subjects from four option groups (one from each group); these options include a

range of GCSEs, BTECs and applied and 'vocational' courses.

When compared across the six schools in the study, publicly available data showed School E to have:

- the third highest measure of average formal attainment at GCSE (a figure well above the national average);
- the third lowest number of students in receipt of free school meals (a figure well below the national average).

Students in our sample (9 at Key Stage 3 and 17 at Key Stage 4) provided data about School E which we were able to compare directly to the other schools in our sample.

- *Enjoyment of learning at Key Stage 3*: 3rd out of the six schools (79% of students said that they enjoyed 'most' or 'everything' done in school timetable time).
- *Enjoyment of learning at Key Stage 4*: 3rd out of the six schools (71% of students said that they enjoyed 'most' or 'everything' done in school timetable time).
- *Extent to which enjoyment of learning in Key Stage 4 had increased compared to Key Stage 3*: 2nd out of the six schools (enjoyment had increased for 77% of these students).

2.18 **School F** is a mixed-sex comprehensive school, set in a large town in rural Wales. The majority of children in this area are 'White British' and bilingual in Welsh and English by the age of 11 years. The school operates through the medium of English although all students study GCSE Welsh (a 'core' subject in Wales). The head teacher describes the school as high performing. Other features:

- the Welsh Baccalaureate is used to frame all Key Stage 4 learning;
- all students study a core group of subjects which include English Language and Literature, Maths, Science, Welsh, RE, PE and PSHE;
- students choose four additional subjects (or the equivalent to this) to pursue in addition to their core subjects;
- the school offers a range of 'vocational' courses: health & social care; customer care; engineering; catering; salon services; and building occupations.

When compared across the six schools in the study, publicly available data showed School F to have:

- the third lowest measure of average formal attainment at GCSE (a figure slightly above the national average);
- the third highest number of students in receipt of free school meals (a figure below the national average).

Students in our sample (10 at Key Stage 3 and 18 at Key Stage 4) provided data about School F which we were able to compare directly to the other schools in our sample.

- *Enjoyment of learning at Key Stage 3*: 1st out of the six schools (100% of students said that they enjoyed 'most' or 'everything' done in school timetable time).
- *Enjoyment of learning at Key Stage 4*: 1st out of the six schools (77% of students said that they enjoyed 'most' or 'everything' done in school timetable time).
- *Extent to which enjoyment of learning in Key Stage 4 had increased compared to Key Stage 3*: 5th out of the six schools (enjoyment had increased for 59% of these students).

Academically-able young people: the student sample

2.19 With our six schools identified, we then set about working with each to identify stratified samples of students suitable for inclusion in the study. Specifically, schools were asked to use student data (SATs scores from Year 6; cognitive ability scores such as those derived from the CAT3 test; '11+' examination results; or other test data held on students by the schools) to create the following groups.

- Questionnaire groups:
  - *Key Stage 3*: students who had experienced formal and informal curriculum activities that are practical/'vocational', but who had not yet undertaken externally-assessed courses primarily of this nature. Each sample group was to comprise 10 individuals chosen randomly from among two bands – those who, according to the data held by schools as to students' abilities, had scored:
    - in the top two deciles of the school population (two girls and two boys in the mixed schools); and
    - in deciles 3–5 (three girls and three boys).
  - *Key Stage 4*:
    - 10 students who were following curricula linked to externally-assessed courses which include

practical /'vocational' elements (e.g. Welsh Baccalaureate Intermediate Diploma, vocational GCSE (double award), the English Level 2 Diploma, BTEC, or a similar programme of study); and
  - a comparison group of 10 who were not following such curricula (most commonly, individuals in the comparison group were taking seven or more GCSEs in traditional subjects only).

  Each Key Stage 4 sample was to comprise 10 students selected by the same stratified ability measures as for the Key Stage 3 groups.
- Focus groups:
  - five individuals selected randomly from each of the sample groups just listed.

2.20 The six schools in the study readily complied with this request. As a result stratified, purposive samples of students were made available to the research team, selected consistently across schools (18 groups of 10: $n=180$). These samples comprised individuals distributed evenly across a range of 'ability' above the average for their school (noting that average GCSE attainment varied widely between schools – see paragraph 2.11).

Research methods

2.21 Fieldwork occurred in the schools between January and May 2010 and was conducted by Dr Sue Sing. This timetable was designed to coincide with the time of year when schools would be in the process of formally advising Key Stage 3 and Key Stage 4 students about the options available to them at the next stage of education.[3] Typically, fieldwork visits followed initial correspondence and phone calls to the participating schools and comprised two days of activity during which questionnaires were administered, focus groups convened and selected teachers interviewed. Subsequently, telephone interviews were conducted with the head teachers of five of the six schools (the sixth having no serving head at the time of the fieldwork).

2.22 The various research methods deployed in each school were as follows.
- *Teacher interviews*. In total, 29 teachers were interviewed in order to elicit background information about each school, its prevailing culture and curriculum and its detailed procedure for providing students with information, advice and guidance. Interviewees were also asked for their professional views about the place of practical, applied and 'vocational' learning in the programmes followed by academically-able teenagers in their school and nationally. Interviews were audio-recorded and subsequently transcribed.
- *Questionnaire administration*. Questionnaires were administered in specially allocated classrooms to the three groups of ten students in each school pre-selected by teachers under guidance from the research team (see paragraph 2.19, above).
- *Focus groups sessions.* Focus group sessions were convened with sub-samples of each of the three questionnaire groups in each school, with the aim of exploring in discussion some of the themes included in the questionnaire. Discussions were audio-recorded and subsequently transcribed.
- *Telephone interviews.* The headteacher interviews conducted by telephone after the main fieldwork visits were designed to explore how practical and 'vocational' learning by academically-able students was situated within the overall aims and ethos of each school. The opportunity was also taken to seek the views of heads as to the value and challenges of working in the sphere of practical/'vocational' learning with academically-able students, and prospects for this kind of work in the future. Interviews were audio-recorded and subsequently transcribed.

2.23 Being a relatively small sample in total (60 students in Key Stage 3 and 120 Key Stage 4), questionnaire responses were subject to frequency analysis at the level of the full sample for each age group and broken down via four respondent variables (gender, school type, individual school and the kind of Key Stage 4 programme of study being followed). The findings presented in Section Four also include reporting of respondents' open-ended questionnaire answers and the transcriptions of the focus group discussions, both analysed from the raw data via thematic coding.

Strengths and limitations of the research design

2.24 *Originality*. So far as we are aware, this is the first UK study to:

3. Fieldwork in five of the schools took place during January to March with that in the sixth school being delayed until May, due to illness.

- explore the main theme of the impact of practical and 'vocational' learning at school on 'academically-able' teenagers;
- deploy a mixed 'school-type' (selective and non-selective) study of the relationship of Information, Advice and Guidance (IAG) processes to students' views of their preferred types of learning.

Our research design also allowed us to work with two separate age groups in each school simultaneously, using survey instruments designed to allow direct comparison of their responses. The only other study we have found which adopts a similar 'parallel age group' method is that conducted (using interviews only) by Sarah Blenkinsop and her colleagues (2006) when investigating young people's decision-making in 14 schools during 2005.

2.25 *Student samples and the definition of 'highly-able'*. The sampling frame for schools and for student respondents within them was achieved in all bar two relatively minor respects (see paragraph 2.12). One of these needs discussion here as it relates to a key aspect of the entire study.

2.26 It has already been noted (in paragraph 2.12) that, to achieve a good educational and demographic spread, two schools in England were included where the average level of attainment in the school was slightly below the national average. Thus a small number of respondents in the total sample – perhaps 7–15 out of 180 – selected by teachers as being in the third to fifth deciles of measured 'ability'/attainment in their school setting may have scored below the average for all students in England.

2.27 This leads to an important related point. The definition of 'academically-able' students suggested by Edge as the funder of the research was 'students who achieve above-average standards at age 11 and 14, who are expected to secure above-average results at age 16'. By asking teachers to select student samples for us on the basis of formal measures of academic ability *or* education attainment (namely, SATs scores from Year 6, cognitive ability scores such as those derived from the CAT3 test, '11+' examination results or other test data held on students by the schools) we were making two important choices:

- to permit the identification of 'academically-able' students to be that of the existing (and varied) measures used by each school;
- to define our student sample as 'academically-able', in so far as the individuals concerned had already achieved higher than average test scores and/or educational attainment than that of their school peer group, noting that this peer group average (when measured in terms of GCSE results in 'core' subjects) was highly varied across the sample of schools.

2.28 In part these two choices arose because we did not have the resources to conduct student sampling ourselves. However, there was an equally important and counter consideration. We knew that our questionnaire and focus group instruments would allow us to compare responses of high-achieving students across individual schools as well as by 'school-type' – the three paired categories of: Welsh 11–18 non-selective schools following the Welsh Bac; English 11–16 non-selective schools offering a range of 'vocational' qualifications; and English 11–18 academically-selective grammar schools. In this light, we considered the decision to work with samples of 'able' students as defined by the contrasting educational practice of each school to be a useful tool, *especially if our findings were to uncover considerable degrees of common response across the students sampled, regardless of school-type*.[4]

2.29 *The age of respondents*. While all of the Welsh student respondents were either in Year 9 (for Key Stage 3) or Year 11(for Key Stage 4), there was a different pattern among English respondents. Here, the two non-selective 11–16 schools mirrored Welsh practice but the two selective grammar schools both operated an accelerated curriculum whereby Key Stage 3 was condensed into two years of study rather than three. As a result these respondents were in Year 8 (for Key Stage 3) and Year 10 (for Key Stage 4). Our main research design determinant in this context was that age was less important than respondents being in the final year of their current phase of learning, and thus experiencing formal advice and guidance from their schools about options for the next phase, at the time of our fieldwork visits. This being said, the early teenage years are a period of rapid change and development for

4. The 1999 Commons Select Committee enquiry into *Highly Able Children* reported (paragraph 27) that 'most LEAs and schools who have devised a definition of their own use a relative definition; that is, the children are compared with others within that school'. The same was true for each of the case study schools described in the 2010 study by Robinson and Campbell.

young people and so it needs to be borne in mind that the respondents at the two selective schools (School C and School D) were, on average, 12 months younger than their peers in the non-selective schools in the study.

2.30 *Sample sizes achieved*. The research design required questionnaires to be administered to 18 groups of students with ten participants in each ($n=180$) and 18 focus groups conducted with five members in each ($n=90$). In the event, due to logistics encountered in the schools, there was some small attrition in the questionnaire sample. In three instances (each in different schools) questionnaire groups comprised eight members instead of the ten envisaged and the total questionnaire sample comprised 170 rather than 180. The total envisaged of 90 focus group participants was achieved, although in two schools groups of six were convened, balanced by two others where there were groups of four.

Chapter 3
Project findings

3.1 In this section we report the empirical findings arising from the project fieldwork. As our main aim in undertaking fieldwork was to portray the outlook of students, their responses to our questions are placed firmly in the foreground. Where the data they generated can be explained more fully by reference to the interviews with school staff that we conducted, these points are noted at the appropriate places in the text.

3.2 The questions put to our samples of 'academically-able' students in Key Stage 3 and Key Stage 4 covered three main themes:

a) enjoyment of school and motivation in different kinds of learning;
b) considerations and challenges when making 'options choices' within the curriculum (in anticipation of more tailored learning in Key Stage 4 and Key Stage 5, respectively);
c) plans for after leaving school.

These themes were explored in the questionnaires given to students and also discussed in the focus groups held in each school.

3.3 Under these themes we report first the quantitative patterns derived from responses to questions in our questionnaire. These are presented in the form of frequency tables (the sizes of the overall samples representing the two age-groups being 57 in Key Stage 3 and 113 in Key Stage 4). Second, these frequency tables are accompanied by commentaries that take two forms:

- elaboration of the overall patterns when related to sub-categories within the two age-group samples:
  - gender;
  - type of school (based on the three pairings of: selective 11–18 schools in England, urban 11–16 comprehensives in England; and rural 11–18 comprehensives in Wales); and
  - at Key Stage 4, overall curriculum choice (comparing responses from those opting for a curriculum comprised solely of subject learning via GCSEs and those who had chosen programmes that included 'vocational elements';[1]
- inclusion of the descriptive points made by students in their responses to open-ended questionnaire questions and in the focus group discussions.

Enjoyment of school and motivation in different kinds of learning

3.4 At the outset we were keen to establish the extent to which our sample of 'academically-able' young people enjoyed their schooling, the kinds of learning that they enjoyed, why this was so and the extent to which these outlooks were shared in common between students in different schools nearing the end of Key Stage 3 (aged 12–14 at the time of our research) and Key Stage 4 (aged 14–16). We also asked about their attitude to practical learning and its relative importance.

3.5 *Enjoyment of learning within the school timetable*
Our first question sought a simple indication of general enjoyment of learning at school. Results are summarised in Table 3, overleaf.

3.6 Given the traditional organisational priorities of secondary schools, it might be expected that 'academically-able' students would, in broad terms, enjoy their learning at school. This was true for our two age-group samples and overall levels of enjoyment were high. All or most activities were enjoyed by 70% of the Key Stage 3 sample and 66% of those in Key Stage 4. In our two samples, boys in Key Stage 3 were more content than girls, a situation reversed in Key Stage 4. Across both age groups, only two respondents out of 170 (both boys in Key Stage 4) enjoyed 'very little' of their timetabled time.

3.7 *Enjoyment of learning on moving to Key Stage 4*
Students in the Key Stage 4 sample were asked if their enjoyment had increased 'now that you have been able to choose some of

1. As discussed in Section Two of this report, the term 'vocational' is a misnomer (in principle, all education is vocational). Here it is used to denote: (a) courses which are not based on subject-study leading to GCSE or GCE A-level; and (b) courses which are 'applied' GCSEs. In one of the selective schools all of the Key Stage 4 students were following courses leading to GCSE subject examinations: see paragraph 2.12.

Table 3 **Overall enjoyment of learning**

	Key Stage 3		*Key Stage 4*	
	Boys	*Girls*	*Boys*	*Girls*
Question: taking account of 'everything you do within the school timetable (lessons and other activities organised by teachers)', do you enjoy:				
Everything you do	10%	4%	3%	0%
Most of the things you do	69%	57%	60%	67%
Some of the things you do	21%	39%	33%	33%
Very little of what you do	0%	0%	3%	0%

Note: in the tables in this section of the report columns may not sum to 100%, due to rounding or non-response.

your subjects'. This was true for 65% of the sample with more boys reporting this benefit (72%) than girls (56%). At first sight, these data appear to contradict exactly the age-based comparative figures of the previous paragraph. However a closer reading of the questions posed indicates that, while overall satisfaction remained broadly high across the two key stages and girls reported greater contentment with school by Key Stage 4, they were significantly less likely than boys to attribute this to greater freedom of choice over subjects studied. Put another way, although boys valued their ability to start to specialise in Key Stage 4, this did not compensate for the lessened enjoyment of school overall. Meanwhile, although Key Stage 4 respondents had greater choice over their curriculum studies, there were fewer students in this age group, compared to those in Key Stage 3, who enjoyed everything they did.

3.8 As explained in paragraph 3.3, our survey also allowed us to compare the responses to all of our questions in two further ways. At both Key Stage 3 and Key Stage 4 we could examine patterns of response by students across our six schools. In addition, at Key Stage 4 we could distinguish between those opting for a curriculum comprised solely of subject learning via GCSEs and those who had chosen programmes that included 'vocational elements'.[2]

3.9 *Enjoyment of learning across the various schools*
As with most of the data in the study, clear responses by school type (in our case pairs of selective English grammar schools, 11–16 English comprehensives and 11–18 Welsh comprehensives) were *not* apparent when it came to student enjoyment of timetabled school activities. At Key Stage 3 there was a wider range in the proportion of students at different schools reporting that they enjoyed all or most activities (ranging from 100% at one of the Welsh comprehensives (School F) to 50% at one each of the English comprehensives (School A) and one of the grammar schools (School D), compared to Key Stage 4 (where the range was from 77% in the same Welsh comprehensive to 55% at a different English comprehensive, School B).

3.10 *Enjoyment of learning depending on type of Key Stage 4 programme of study*
When it came to comparisons between respondents at Key Stage 4 who were following a curriculum comprised solely of subject learning via GCSE and those whose programme included 'vocational elements', 69% of students on the 'GCSE-only' route enjoyed 'all' or 'most' of their school learning, compared to 62% of those whose programme had 'vocational elements'. Across the entire sample, only 7 out of 113 respondents reported that their enjoyment had decreased at Key Stage 4.

3.11 Unsurprisingly, the principal reasons given by almost all of the two thirds of students who reported enjoying learning more in Key Stage 4 than previously was the freedom to choose some subjects or courses, to drop others and to concentrate on areas where there was the most potential for enjoyment and high attainment. Such questionnaire responses were couched strongly in personal terms with just five out 71 mentioning the benefit of working alongside peers with

2. Across the six schools, course options comprised varied blends among: GCSEs, applied GCSEs, Diplomas, BTEC courses and other 'vocational' awards: see paragraphs 2.13–2.18.

Table 4 **Enjoyment of lessons: Key Stage 3**

	Key Stage 3		
	*Overall rank**		
	All	*Boys*	*Girls*
Question: the types of things you enjoy most			
Art/music/drama type lessons	1	3	1
PE/outdoors type of lessons	2	1	3=
Technology/IT (computing) type of lessons	3	2	3=
Extra-curricular 'in-school' activities (e.g. all-day or half day activities at school that are not part of the normal timetable)	4	6	3=
English/Welsh/history/geography/RE type of lessons	5	5	2
Extra-curricular activities away from the school site	6	4	6
Maths and science type of lessons	7	7	7

*Based on inclusion as one of the 3 most preferred activities

similar motivations. Of those Key Stage 4 students in the sample who either felt similar or lower levels of enjoyment compared to their experience of Key Stage 3, the most common comments related to (a) a perceived increase in workload (12 responses out of 39) and/or (b) the requirement to continue studying subjects/courses that the respondent had not liked previously (7 responses out of 39). These factors either counterbalanced or outweighed the increased enjoyment derived from specialisation.

3.12 *Areas of special interest within the timetable of school activities*
Students at Key Stage 3 were all following a timetable common within their school. The next question asked them to rank their enjoyment of different lessons/activities within the school timetable. Their responses are summarised in Table 4, above.

3.13 The top ranking for art/music/drama was secured by its particularly strong popularity with girls (29% placing it as the first choice) and PE/outdoors by strong support from boys (48% placing it as first choice). It is notable that these results show 'academically-able' 12–14 year-olds placing non-traditional subjects at the head of their list of preferences (along traditional gender lines). However, it was also notable that in the two grammar schools humanities subjects were the most popular in one (School D: alongside art/music and drama) and maths/science was the third most popular in the other (School C).

3.14 As part of this question, the Key Stage 3 respondents were asked to comment on their top two choices. A range of answers was provided, many of which anticipated specific points that would arise later in the questionnaire. However, the overriding theme related to students' sense of engagement, be this pure enjoyment, confidence in an ability to do well, the pleasure of being active (rather than 'sitting down in class' or 'writing') or intrinsic interest. One word repeatedly used in this context was 'fun', while a number of students also spoke of their fondness for or love of a particular activity. Out of 142 responses to this question (a number of respondents nominated three choices rather than the two requested), just 31 chose a traditional analytical subject as most preferred (one or more humanities subjects: 19; maths and/or science: 12).

3.15 The data on enjoyment and motivation reported in paragraphs 3.12–3.14 was expanded upon in the *Key Stage 3* focus groups where participants were asked what, for them, were the best parts of the school week: what they enjoyed most and why. As with the questionnaire answers, the most popular response – identified by

some discussants in all six schools – was PE/sport. Other popular subjects included predominantly practical areas such as Design and Technology, IT, music and drama, as well as more analytic subjects such as history, geography, English and science.

3.16 Enjoyment of these subjects/activities related mainly to the associated mode of learning and its affordances: the opportunity to engage in practical and physical activities; being able to move/run around; not merely sitting and doing written work in a classroom. This, it was explained, provided greater opportunities for self-expression compared to forms of learning associated with other subjects:

'You can express yourself a bit more in art than you can in your writing'. (School F)

'I think it's the freedom in the lesson that you get, you know you get to express yourself. You can't do that in a theory lesson because you can't write down what your feelings are, you have to write what's on the board or the answer'. (School B)

Students also enjoyed opportunities to be creative – *'I just like putting all my thoughts down on a piece of paper and drawing it'* (School D) – where they appreciated the autonomy, relative freedom, flexibility and opportunity to work independently, especially where the forms of learning available were more active. Across the six participating schools, the subjects and activities cited, and the reasons given to explain special enjoyment, were largely similar. Meanwhile, there were no noticeable differences found between the different types of school in the study.

3.17 This theme of enjoyment was also explored in the *Key Stage 4* focus groups, discussants in this age group also being asked about the best parts of the school week and why these were the most enjoyable. Across these 12 focus groups there was a notable difference between the main preferences of the students who had opted for a curriculum comprised solely of subject learning via GCSEs and those who had chosen programmes that included 'vocational elements'. There was however, little difference within these two sub-groups.

3.18 *'GCSE-only' groups.* In the main, these students tended to describe their preferences in terms of subjects – both those of a more analytical kind such as maths, English, physics and geography, as well as those which are more practical/expressive, such as Design & Technology, PE and Art. Across the six schools, the most common sources of these students' enjoyment were largely similar. Certain subjects were 'fun', relatively relaxed, encouraged particular ways of working or offered freedom for the pursuit of interesting and/or beneficial activities. For some, writing was preferred to playing sport; others valued active participation in practical, hands-on activities to sitting and working with a textbook. One student following such a timetable described liking PE because it was a break 'from the schedule' of writing and this comment was echoed by others who spoke about the location of their learning. Being away from the classroom was popular, whether students were simply outdoors on the school site or off-site completely such as during a school trip. Enjoyment was also often associated with the opportunity to be with friends and with especially liking a subject teacher and feeling they were approachable if/when students needed additional clarification of tasks and activities.

3.19 *Students following programmes with 'vocational' elements.* The preferences of the more 'vocationally-orientated' students were, in some ways, more 'focused' than their GCSE peers. They reported mainly enjoying practical activities and/or courses orientated toward occupational knowledge and skill, such as PE, a Diploma course or a BTEC programme. On several occasions students in all six schools who were pursuing 'vocational' options identified particular days of the week that they especially liked, primarily due to the specialist activities occurring throughout the duration of such days.[3] Compared to groups following a curriculum comprised solely of GCSE subjects, these students were also more likely to mention enjoyment of Friday and Friday afternoons, most commonly because, by this time, they were arriving at the end of the school week. The main reasons cited for high enjoyment of practical activities tended to be the same or largely similar to those offered by the 'GCSE-only' students. They liked to be with their friends; they enjoyed practical activities, the opportunity of active involvement in learning, to do individual work and to work out solutions/answers for themselves. They, too, liked being outside the classroom and/or off-site, whether it be

3. For the distinctive make-up of this group in School C, see paragraph 2.12.

Table 5 **Enjoyment of kinds of learning**

	*Overall rank**					
	Key Stage 3			*Key Stage 4*		
	All	*Boys*	*Girls*	*All*	*Boys*	*Girls*
Question: 'I enjoy the kind of learning where you have to':						
Act in a physical way (e.g. sport, drama, performance)	1	1	1	1	1	1
Try something out and see how it works or what happens	2	2	2	2	2	2
Solve puzzles or formulas	3	3=	4	3	3	3
Gather facts and analyse them	4	3=	3	4=	4	5
Understand ideas or writings	5	5	5	4=	5	4

*Based on inclusion as one of the 3 most preferred activities

for a sport or for a Diploma course. Even where such courses were taking place at school, students derived their enjoyment from learning that was felt to be happening at a remove from everyday school-based activities. As one participant remarked, 'it's kind of completely separate to school' (School B).

3.20 *Preferred 'kinds of learning'*
Moving away from considerations of the formal timetable, questionnaire respondents at both Key Stage 3 and Key Stage 4 were next asked to consider and rank the 'kinds of learning' they enjoyed most.

The answers – summarised in Table 5, above – showed very clear consistency across age groups and across gender in each age group.

3.21 Among respondents at *Key Stage 3* the preference for physical and expressive types of learning was very marked: 60% ranked it as their first choice (62% of boys and 57% of girls). When the incidence of first, second and third choices was aggregated, the top two items ranked (physical/expressive and experimental) scored significantly higher than the other items. Across the six schools there was much consistency of response although in one of the schools it was notable that the dominant popularity of physical and expressive types of learning reported elsewhere was not replicated. In School A (an English 11–16 comprehensive) learning based on heuristic method ('try something out and see how it works or what happens') was more popular.

3.22 As part of this question the Key Stage 3 students were asked to comment on their top two choices. A notable feature of these responses was how enjoyment related, for some, to physicality and for others, to exploration. For many respondents these two points were related and contributed to a sense that analytical learning involving activity could be very enjoyable. Thus, when choosing the second- or third-ranked categories in the table in paragraph 3.20, typical explanatory comments were:

'It helps to improve your understanding of basic and complex knowledge'. (School A)

'I don't respond well to listening… If the teachers tell you what is going to happen it's boring and you forget it'. (School C)

'I like discovering things and I enjoy learning new stuff'. (School D)

'It's new, fun and demands your attention and thoughts. It makes you think'. (School E)

3.23 Turning now to respondents at *Key Stage 4* under the same general heading of Preferred Kinds of Learning, the table in paragraph 3.20 shows that physical and expressive types of learning were also placed highest by these questionnaire respondents (49% ranked this item as their first choice: 48% boys and 49% girls). However, this item was a less dominant first choice than amongst Key Stage 3 respondents and the popularity of the various items was more evenly distributed

Table 6 **Enjoyment of kinds of learning, by Key Stage 4 programme of study**

	*Overall rank**	
	Key Stage 4	
	'GCSE-only' subjects group	*'Vocational elements' group*
Question: 'I enjoy the kind of learning where you have to':		
Act in a physical way (e.g. sport, drama, performance)	1	1
Try something out and see how it works or what happens	4	2
Solve puzzles or formulas	3	3
Tackling 'real world' or 'everyday life' problems or situations	2	4
Gather facts and analyse them	5	6
Understand ideas or writings	6	5

*Based on inclusion as one of the 3 most preferred activities

at Key Stage 4 compared to the younger age group. Given the wider literature on teenage girls' increasing dislike of physical education as they get older[4] it is likely that responses to the top-ranking item in the table from males were more related to the sporting element in the question, while those from females related more to drama and performance.

3.24 As with the younger age group, there was much consistency of response across the six schools, although in two it was notable that the dominant popularity of physical and expressive types of learning reported elsewhere was not replicated. In School C (the boys grammar school) physical and expressive learning was displaced from top position by a first choice preference among respondents for learning involving the solving of puzzles or formulas, while in School B (an English comprehensive and the school among the six with the lowest recent GCSE results) learning based on experimentation ('try something out and see how it works or what happens') was the most popular. This latter finding may have related to a very strong ethos in School B that all students should have access to a range of learning styles across all subjects.[5]

3.25 *Preferred 'kinds of learning', depending on type of Key Stage 4 programme of study*
When responses about learning preferences were analysed in relation to the two sub-groups at Key Stage 4 – the 'GCSE-only' students and the more 'vocationally-orientated' students, there were some interesting results (see Table 6, above).

3.26 Perhaps unexpectedly, these data show that students following programmes made up entirely of GCSE subjects rated highly the item 'tackling "real world" or "everyday life" problems or situations' – both when compared with other kinds of learning in their programme and with their peers following programmes of study which included 'vocational elements'. This finding was echoed in the focus group discussions (and linked to enjoyment of learning away from the classroom), as was the questionnaire finding that the groups solely studying GCSE subjects rated 'understand ideas or writings' as their least preferred school activity.

3.27 *Preferred 'kinds of learning' across the various schools*
When rankings about preferred types of learning were analysed across the six schools no clear patterns emerged based on school type. Neither was it the case that the typical image associated with schools of different kinds resulted in stereotypical respondent patterns in relation to this question. For example, at one of the grammar schools (School D) the group electing to study only GCSE subjects rated its highest preference for kinds of learning as 'acting a physical way', followed by 'tackling "real world" or "everyday life" problems and/or situations'.

4. Laker, 2002; Colley and Comber, 2003.

5. 'We need to make sure that what we are doing is equipping our students for everything. So, academic students need to understand that, yes that's great but they will be even better learners if they can be more flexible, if they can get up and do the social stuff, they can do the applied stuff, they can do the active practical learning and not feel, as the minority here still do, that we are wasting their time if they are not battered to death with a textbook in front of them' (deputy headteacher interview: School B).

Table 7 **Preferred types of learning and perceptions of ability**

	Key Stage 3		*Key Stage 4*	
	Boys	*Girls*	*Boys*	*Girls*
Question: 'My preferred types of learning are':				
The ones I feel that I do best at and have been given high marks for this year	79%	79%	78%	78%
Not necessarily the ones I feel that I do best at, but I wish they were	14%	4%	10%	13%
Not necessarily the ones I feel that I do best at, and this doesn't matter to me	7%	14%	12%	9%

Here, it seems, school ethos was a factor given that technology-based subjects were compulsory at Key Stage 4 as part of a drive to introduce a wider range of learning styles to students likely to attain very highly in traditional subject study.[6] Meanwhile, respondents who had elected to include 'vocational elements' in their programmes of study at one of the Welsh comprehensives (School E) rated as their joint second preference (after 'acting in a physical way') the two items that were the least preferred choices of the schools-wide sample as a whole: 'gathering facts and analysing them' alongside 'understanding ideas or writings'.

3.28 As part of the question about preferred kinds of learning, the Key Stage 4 students were asked to comment on their top two choices. These responses were very similar to the equivalents provided by their Key Stage 3 peers: physicality and exploration were rated most highly for enjoyment. As with the younger age group, for many respondents these two points were related and contributed to a sense that active, analytical learning could be very enjoyable. Typical among such explanatory comments were the following:

'When I get to try something myself, I understand it better, and enjoy it more if I can understand it'. (School A)

'It gives me a sense of achievement and quite often there are different ways to approach the same problem'. (School B)

'It seems to me the most logical approach to life. If it goes wrong, you are still learning something'. (School C)

'I like the kind of learning which involves physical activity – I can retain such learning better'. (School E)

'It helps me understand more and shows me how things work if I don't quite get them' (School F)

As with the responses of questionnaire participants at Key Stage 3, many of these comments conveyed the point, implicitly or explicitly, that sitting at a desk and writing was among the least enjoyable activities that school had to offer. Indeed, the option 'Understanding ideas or written language' was selected as a favourite activity just 14 times out of 237 occasions (and no more specifically by the highest-attaining respondents in the selective grammar schools).

3.29 *Motivation to pursue a particular kind of learning*
Having asked students to identify their preferred kinds of learning we next asked them about the motivation which accompanied this. Once again, the results were remarkably consistent between and within the two age groups, as shown in Table 7, above. For both Key Stage 3 and Key Stage 4 students, and for boys and girls equally, motivation was strongly linked to perceived ability and the reinforcement of this provided by prior attainment.

3.30 Among the small minority for whom perceived ability and reinforcement through prior attainment was not the most important factor, there was some suggestion that, by Key Stage 4, more girls than boys had regrets that they struggled in some of their preferred areas of learning. Similarly, there were few students

6. 'GCSE is just too much of the same thing for them and they need to experience a different style of learning. With having three years now [for Key Stage 4: Years 9–11], particularly in Year 11 we've been able to vary things and give our students a more varied stab at GCSEs. The challenge we have now is to bring that lower down the school. It's changed what goes on inside the lessons and we as a school are emphasising developing independent learners. There's no point in getting students to do 'A' levels and sending them on to university unable to cope completely' (deputy headteacher interview: School D).

who, by Key Stage 4, had the confidence to explore kinds of learning unendorsed by positive experience or high prior attainment. However, in our sample boys at Key Stage 4 were more likely than their younger peers to branch out in this way, while the reverse was true for girls.

3.31 *Motivation to pursue a particular kind of learning across the various schools*
There were no clear patterns in the data relating to this question which suggested that school type affected students' responses. Across the various schools, responses were similar and where the greatest variance occurred this was between age groups in the same school (a Welsh comprehensive, School F, which saw the highest proportion of Key Stage 3 respondents and the lowest proportion of Key Stage 4 respondents indicating that they were most motivated by prior attainment in a particular kind of learning). Neither was it the case that response patterns were markedly different among schools for Key Stage 4 students following programmes comprising 'GCSE subjects only' or those whose choice had included 'vocational elements'.

3.32 The general theme of learning preferences, enjoyment and motivation was expanded upon in discussion with focus group participants in both age groups.

3.33 Among the discussants at *Key Stage 3* there was consensus across schools concerning the clear presence of a link between enjoyment of learning and motivation. Students commented that if they enjoyed an activity or subject this made them feel that they wanted to engage more with it and/or invest greater efforts to try to achieve well. In all but one school (School E, one of the Welsh comprehensives), particular teachers were mentioned as exerting a significant additional influence over feelings of enjoyment and motivation. Some students spoke of whether they liked the teacher or not and how this could impact on how much they liked a subject, how hard they worked, and whether they chose to continue with the subject as part of their Key Stage 4 options. It was important to them that the teacher was approachable – someone they could ask for help, who provided them with encouragement and who praised them. For students in three schools (one from each of the three pairings of English selective grammars and English 11–16 and Welsh 11–18 comprehensives: schools A, C and F) the ability to achieve good marks in a subject was cited as a strong motivator and led to increased enjoyment. Discussants also commented that enjoyment, as such, was insufficient as a motivator: the student also needed to believe that he or she could achieve well in that subject or course. In a small number of cases, individuals thought that subjects or courses they expected to enjoy less should, nevertheless, be pursued, the onus falling on them to seek means of enjoyment elsewhere in school or from other sources such as activities pursued at the weekend.

3.34 These discussants were also asked whether challenge acted as a motivator and where specific points were made on this – in five of the six schools – there were mixed views. In the main, individuals said that they would try to rise to challenges they faced but the form this was likely to take varied. Where, at the outset, they perceived the challenge of a task to be too difficult, this would deter some from even attempting it (School D and School F). Others said that in such a circumstance they would try, nonetheless (School A and School B). Others again remarked that competition/friendly rivalry was a motivator (School D and School F), as was goal-oriented activity (schools D, E and F). In all of these responses on the part of Key Stage 3 discussants, school type did not have any discernable effect overall on views as to the nature of the link between motivation and enjoyment.

3.35 Among the focus group discussants at Key Stage 4, we also found majority agreement concerning a link between enjoyment of the subjects/courses and motivation. Participants in all 12 of these focus groups spoke of mostly similar reasons for their enjoyment, which in turn generated/helped to maintain their motivation. Within this broad consensus the most frequently cited points included (not in any rank order):

- the student's ability to achieve good grades for a subject/activity;
- liking/having good rapport with a specific teacher and/or deeming them to be a 'good' teacher (defined as someone who makes lessons interesting or who will help when understanding is difficult) – all of which served to generate stronger levels of motivation to achieve personally and/or for the teacher concerned;

- a liking for subjects/courses associated with particular types of learning;
- feeling especially attuned to certain 'option choice' subjects/courses;
- a preference for a type of learning location (whether it be on school premises away from the classroom, or off-site altogether such as for a school trip);
- finding a subject/activity interesting;
- challenge (such as presented by degrees of difficulty or the nature of particular tasks);
- competition and rewards (extrinsic, such as sweets for achievement in a languages lesson or intrinsic, in the sense of a feeling of personal achievement);
- goal/target-driven motivation; and
- links to future intentions/plans (e.g. further study; career plans).

Disincentives to learning and depressors of the level of effort expended included (not in any rank order):

- the experience of study method/content not meeting prior expectations in a given subject area;
- disliking the teacher;
- group-based challenges being perceived as less motivating than the challenge to out-perform an elder sibling or another school in a competition;
- feeling that a particular teacher did not know the student or their capabilities;
- at the outset, perceiving a task to be 'too challenging'; and
- bad behaviour on the part of other students.

3.36 Within the Key Stage 4 focus groups, the overall tenor of outlooks and views were similar between those following a curriculum comprised solely of GCSE subjects, and those whose programmes included 'vocational elements'.

3.37 *'GCSE-only' students.* Many of these discussants were definite that enjoyment played a strong part in terms of how much effort they chose to invest and that this was coupled with interest in the subject and its associated activities as well as their ability to achieve a good grade. If students felt they were high achievers in the subject this spurred them to continue trying and working hard. Equally, where students were aware or may have been told by their teachers that a subject was not their strongest, some reported expending extended effort in an effort to achieve beyond their predicted grade and to exceed their teacher's expectation.

3.38 These students frequently referred to their motivation levels being influenced by their feelings towards their teacher: there was often a positive impact where they liked the person, felt that they were a 'good' teacher (someone who makes the lesson more interesting or who knows their students well) and/or felt a connection with that person. These positive influences could apply equally to subjects that students enjoyed less. However, when students did not feel such an affinity with their teacher this could result in reduced efforts or the deliberate attempt to pose problems for the teacher, for example by being disruptive.

3.39 Other key motivational factors mentioned by 'GCSE-only' discussants included liking the subject (particularly where this was an options choice), their ability to do well and receiving praise and recognition from their teachers for their efforts. This last point was of special significance for some students and praise appeared to be more meaningful for them when offered by teachers rather than family members. Within the curriculum tied to a specific subject, a number of students spoke about the impact on them of different types of learning. For some, being actively involved in a practical activity and trying something for themselves was conducive to better concentration compared to sitting listening to the teacher talk for long periods. For others, goal-driven activity helped engender motivation, for example 'competing' to achieve a higher grade than an elder sibling or training in preparation for a sporting activity. To a lesser extent, parental expectation also served as a motivator, especially the feeling of not wanting to disappoint. In addition, seeing friends engaged in an activity about which a discussant felt less positive, sometimes helped to motivate.

3.40 When asked about the link between degrees of challenge and motivation, there were mixed reactions. In many cases, challenge seemed to have a positive impact – which perhaps relates back to the earlier point about goal-driven activity. One student even described how, when faced with something difficult, she would push herself harder to try to achieve and when she did achieve this produced a cumulative motivational effect in relation to future challenges. These students also talked

about different types of challenge such as problem-solving, perceived levels of difficulty and intrinsic interest. Some remarked that if, at the outset, they perceived the challenge to be beyond their capabilities this could have an immediate de-motivating effect (as was similarly reported by some Key Stage 3 students). In two schools (schools B and D), a class had been given a task which, students were told, was an A*-level question. This appeared to have a positive impact, the students feeling that if their teacher thought they were capable of tackling such work, this was a desirable reflection on themselves. The reporting of this kind of motivational effect – the attempt to master difficult work – appeared to reinforce the desire of students to create a sense of self-achievement. In other instances this was said to have been secured through engaging in a hands-on activity or from being able to explain something to another student or a family member.

3.41 *Students following programmes with 'vocational elements'.* As with responses of the students in the 'GCSE subjects only' focus groups, many of these discussants also felt there was a link between how much they enjoyed a subject or activity and how motivated they felt. Many made comments that clearly indicated an intention to work harder when they strongly enjoyed a task, whether this was related to a subject, a course or an activity, linked to the aim of achieving good grades. In four of the six schools (schools A, B, D and E), these discussants referred to the influence of the teacher on their level of motivation. For some, certain teachers had been a source of motivation: through their encouragement; by being approachable; where a good relationship was perceived to exist; through helping students when they found understanding difficult; and when wanting to exceed expectations. However, an opposite effect could exist if students disliked a teacher for some reason. Future plans served to motivate some individuals who spoke of being more motivated for those subjects or courses they also planned to take further in future. In one school (School B), discussants reported motivation levels being largely determined by how they felt on the day, for example the extent to which they felt tired. In response to this, others in the same group commented that being presented with a challenge could change this and, indeed, serve as a motivator. Across the schools, some of these students also mentioned the importance of the way they learnt: for instance, practical activities were 'a nice change' to writing.

3.42 There were mixed views among those pursuing 'vocational elements' in their programme about whether challenge proved motivational. For some, this could depend on the type of challenge or on how they felt that day. Others liked challenge where this was competition-focused, such as competing against another school in a technology tournament. In contrast to the 'GCSE-only' groups, the ability to do well was a source of motivation only for some students in a small number of schools. Liking the subject/course and finding it interesting clearly influenced students' attitudes positively, and as with the 'GCSE-only' peers, there was a link between positive attitude toward an element of the programme of study if this had been an options choice.

3.43 Within the broad consensus of all Key Stage 4 discussants that linked enjoyment and motivation, two of the 'vocational elements' groups spoke more tentatively or in different terms about what motivated them to learn and why they enjoyed the subjects/courses/activities they had named. For one of these groups (School E), this was especially due to their enjoyment and preference for the particular styles and types of learning: with reference to a BTEC course which many were pursuing one student described it as 'common sense learning'. When the students in the other group (School B) were asked if they felt there was a link between enjoyment and motivation, their responses were of a more tentative nature. They maintained that this was true sometimes, but tended to depend on their general disposition on the day.

3.44 *Attitudes to practical learning and its relative importance*
Having asked about preferred kinds of learning, we next asked the entire sample of students to give their assessment of the relative importance of learning which includes 'practical' elements. The responses are summarised in Table 8, overleaf.

3.45 As can be seen, there was strong support, among boys especially, for the general notion that practical learning is just as important as more traditional forms of study. Responses across both age groups were very similar.

Table 8 **Relative importance of practical learning**

	Key Stage 3		*Key Stage 4*	
	Boys	*Girls*	*Boys*	*Girls*
Question: compared to study of the subjects you have to take (e.g. maths, English), are 'practical and "applied" activities':				
More important	10%	14%	9%	15%
Just as important	79%	64%	74%	66%
Less important	10%	14%	16%	16%

At Key Stage 3 respondents from the non-selective schools were slightly more likely to consider learning with 'practical elements' as being more important than their studies of core subjects, but this difference was not apparent among Key Stage 4 respondents.

3.46 Questionnaire respondents were asked to provide a short explanation of their response to this question. Among the Key Stage 3 respondents, just five eclectic explanations (out of 53 received altogether) were provided as to why practical activities could be seen as more important than that of the learning typical in compulsory subjects.

'Because when we do them, it helps us to communicate with other people'. (School A)

'Because it is what I enjoy doing and, so far as I know, so do lots of other people'. (School B)

'It keeps you healthy'. (School C)

'They are important for your GCSE examinations'. (School E)

'Because we must have some freedom in school rather than written or research work all the time'. (School E)

In similar vein, there were just seven such explanations given for why such activities might be seen as less important. Here, four responses related to the core subjects (cited as maths, English and Science) being the best preparation for good jobs and for university entry: '*They will help you get a job*', '*They will help us move up in the world and these activities won't*', '*When you're applying for uni they're not really going to care about a dance that you did, they'll just want to see if you got good marks in proper subjects*'. Two other answers to this question stated that practical activities were less important but more fun, while the final such response stated that '*Explaining and justifying your understanding of your knowledge is more important than practical lessons*'.

3.47 More significant than these 'outlying' comments, and as reported in the table in paragraph 3.44, a large majority of respondents considered practical learning and the knowledge associated with core subjects to be equally important. Among the 41 such explanations provided there were clusters of answers.

(a) The relevance to adult life of 'applied' and 'practical' learning is just as strong as for core subject learning – 13 responses, such as:
'*We should do different activities – a mix in everything – to learn new skills. The outside world doesn't just include maths, English and science*'. (School A)

'*As well as mentally preparing for your life ahead, we should also try our practical skills*'. (School B)

'*I think all subjects that are being taught are important, so I try to do my best in all of them*'. (School C)

'*Because there is more to life than sitting in a classroom listening to a teacher*'. (School D)

'*In life we must do various activities and for us to learn in detail we need practical lessons.* (School E)

'*Maths and science are all good but they are not going to help you any more than things like Design and Technology, because employers look for the*

experienced people who have been there and done it'. (School F)

(b) There needs to be a balance and mix of activities within the school week – 10 responses, such as:
'*If you just wrote, people would get bored and wouldn't pay any attention*'. (School B)

'*Because if there wasn't a practical activity we would be doing written work every day*'. (School C)

'*I feel that it can't be all sitting down and working; we should [also] be allowed to do physical activities and get creative*'. (School D)

'*Because you would get bored all day doing maths and English, so the more activities we do the better because then you know your strengths and weaknesses.* (School D)

'*It gives you a chance to get up and do something different, but other lessons are still important*'. (School D)

'*Because if you're stuck at school every day doing the same routine there's nothing really to look forward to*'. (School F)

(c) Knowledge and understanding within the curriculum is enhanced by a mix of learning types – 6 responses, such as:
'*Practical activities are good because you're doing what you are learning and you get to see what happens*'. (School A)

'*Because although I am taught better by doing, I can't just keep learning by doing, because I need to explore learning through listening and visualising*'. (School C)

'*I think actually doing things helps you remember more than listening and writing, because you can remember doing it rather than only remembering the writing*'. (School F)

(d) The range of learning along a continuum from the practical to the theoretical allows different people to thrive – 5 responses, such as:
'*Everyone has a different way of learning and my way is doing stuff*'. (School A)

'*Some people might be good at written tasks, some practical work*'. (School A)

'*People might start getting bored of just doing paperwork. If they do some practical activities, you could mix it up*'. (School C)

(e) Practical and expressive activities are an important aid to physical fitness, health, relaxation and well-being – 5 responses, such as:
'They give us time to relax and express ourselves and even though it is important that we undertake academic subjects, we are not robots'. (School F)

'They teach us to be responsible for our own work'. (School F)

'Beside being smart, you have to be fit and healthy'. (School F)

(f) Most school learning, even in the core subjects, offers a mixture of practical and written work – 2 responses:
'*In science, practical is more than written work*'. (School A)

'*Because you have to do something practical in every subject*'. (School E)

3.48 It was notable that in the patterning of this range of responses, students from three of the six schools repeatedly and almost exclusively stressed the need for a balanced curriculum to reflect more effective learning and better preparation for adult life (categories (a), (b) and (c), above). These were School C and School D, the very high attaining English selective grammars, and School B, the comprehensive with the lowest formal attainment among students across the study and with an overtly 'vocational' curriculum culture. In all three cases responses suggested that the sought-for balance was seen by students as an antidote to a heavily abstract curriculum, dominated by desk work and writing. Resistance to such a regime was overt in the case of School C, where focus group respondents complained about the pace enforced by the accelerated curriculum they were following with, in their view, insufficient time to cover the necessary material leading to a sense of falling behind and underachievement.[7]

7. Members of this group went on to explain that they were having to spend extra time on some subjects to try to catch up, to the detriment of their performance in others. They also felt somewhat 'out-of-synch' with their peers in other schools, who were not following an accelerated curriculum, with some suggesting that this impacted negatively on their social and personal growth (for example, missing out on some social experiences because of increased study and earlier exams).

3.49 *Attitudes to practical learning and its relative importance depending on type of Key Stage 4 programme of study and across the various schools*
As reported in the table in paragraph 3.44, a large majority of student respondents at Key Stage 4 indicated (as had their Key Stage 3 peers) that they considered learning that has 'practical elements' to be just as important as the more abstract 'core' subject studies that they were obliged to undertake. Of the small minority who considered the more abstract subjects to be of greater importance than practical learning, those who had elected to follow a programme comprising GCSE subjects only (22%) outnumbered those whose programmes included 'vocational elements' (10%). Meanwhile, among schools the proportion of respondents at Key Stage 4 considering practical learning to be less important ranged from 0% to 25% but the range of such responses showed no clear link to whether or not the school was academically selective.

3.50 As with their younger peers, we asked the Key Stage 4 respondents to qualify their answer with a short explanation of their response to this question. 103 respondents did so, 12 of whom valued 'applied' and 'practical' activities more highly than the core subjects, for a variety of reasons: because they increased motivation and independence in learning; because they would assist career opportunities; and because they broadened an individual's skills. Among the 18 responses valuing the core subjects more highly, reasons given were that they were intrinsically more important and assisted with university admission and with career development.

3.51 As at Key Stage 3, a large majority of the responses (73 of 103) described why students had come to value equally 'applied', 'practical', and core-subject learning. The reasons given clustered in the same way as for the younger age group (see paragraph 3.47), in the same proportions and conveyed very similar sentiments, as follows.

(a) The relevance to adult life of 'applied' and 'practical' learning is just as strong as for core subject learning – 38 responses;
(b) There needs to be a balance and mix of activities within the school week – 10 responses;
(c) Knowledge and understanding within the curriculum is enhanced by a mix of learning types – 10 responses;
(d) The range of learning along a continuum from the practical to the theoretical allows different people to thrive – 6 responses;
(e) Practical and expressive activities are an important aid to physical fitness, health, relaxation and well-being – 3 responses;
(f) Most school learning, even in the core subjects, offers a mix of practical and written work – 3 responses.

The only difference between the age groups was the increased belief of Key Stage 4 respondents in the validity of proposition (a), above. This was now the dominant outlook of respondents at all schools except School B (the school with the lowest average attainment and where there was a greater tendency for respondents to focus more on the way in which practical activities provided variety within the school week to offset deskwork in the classroom).

3.52 *Respondents' assessment of the popularity of practical learning among their peer group*
When it came to this judgement, a large majority of all students in the study considered that most or all of their friends enjoyed practical learning 'very much' (64% in Key Stage 3 and 63% in Key Stage 4). Such data are to be treated with caution comprising, as they do, responses on behalf of others. However, they probably reflect general aspects of student culture and it may be significant that, in this sample at least, the responses of boys in Key Stage 4 were less positive than those in Key Stage 3 (62% compared to 72%), while those of older girls were more positive (64% compared to 54% at Key Stage 3).

3.53 In contrast to the similarity across schools of responses to the previous question, reported in paragraph 3.27, there were some clear school-by-school features of the data under this heading of peer group attitudes. First, the incidence of perceived enjoyment of practical learning by the peers of respondents was much more varied across schools at Key Stage 3 (range: 90% to 25%) compared to Key Stage 4 (range 75% to 29%). Second, among each age group the respondents in one school reported much lower appreciation of practical learning than in the other five. At Key Stage 3 this was in one of the English comprehensives (School B); at Key Stage 4 it was in one of the Welsh comprehensives (School F).

8. Due to illness, research in one school (School B) was postponed until May 2010.

9. i.e. a set of core subjects, including Welsh, along with four mandatory key skills (two at level 2 and two at level 1, each of which must incorporate Communication, Application of Number and IT): working with an employer team; enterprise and community; participation reports; and an individual investigation at level 2, WAG, 2007.

Table 9 **Course choices at the end of Key Stage 3**

	Key Stage 3	
	Boys	*Girls*
Question: your chosen courses at Key Stage 4		
All of my options choices will be GCSE subjects	86%	54%
I will choose [a partial or full 'vocational' course offered by the school]	11%	13%
I am not at all sure yet what options I will choose.	3%	9%

Considerations and challenges when making 'options choices' within the curriculum

3.54 The next set of questions in our study asked students about the likely choices that they would be making in relation to the learning stage ahead of them at school or college, the degree of difficulty they associated with making such choices, the rationale they followed in doing so and the considerations that had most weighed with them in reaching their decisions. The fieldwork was timed to coincide with the annual peak of activity in each school (January to March)[8] concerning the Information, Advice and Guidance provided for students in relation to course choices.

3.55 *Likely overall course choices for the year ahead*
Responses to this question are reported separately for the two age groups, although it may be noted here that the dominant response in both age groups was the intention to study solely GCSEs (for those currently at Key Stage 3) or solely A-levels (for those currently at Key Stage 4).

3.56 At Key Stage 3, questioning about the major options on offer to students was relatively straightforward. In both Wales and England the full programme followed by students included those subjects required to be studied within the National Curriculum of each country, while in the two Welsh comprehensives in the sample all students were also required to undertake a programme structured by the Welsh Baccalaureate.[9]

3.57 As shown in Table 9 (above), a majority of Key Stage 3 students were contemplating a programme of learning where the options chosen comprised solely additional GCSE subjects (excluding 'applied' GCSEs), although at the time of the survey many more girls than boys had yet to make their decisions. At one of the Welsh comprehensives – School F – all students reported having already decided to pursue as options solely additional GCSE subjects. The other five schools contained the 12% of the sample whose options were likely to include non-traditional subjects at GCSE or other courses, as follows:

English 11–16 comprehensive schools:
- School A: 30% were thinking of taking the GCSE in Applied Business
- School B: 13% were thinking of taking a Diploma and a further 13% a BTEC course

Welsh 11–18 comprehensive schools:
- School E: 11% were expecting to pursue 'mainly vocational/practical options within my Welsh Bac'

English grammar schools:
- School C: 10% were thinking of taking the BTEC in Applied Business that the school was considering introducing the following year
- School D: 10% were thinking of taking a Diploma and a further 20% GCSE in Applied Business

3.58 At Key Stage 4 the responses reflected the greater range of major options on offer (see Table 10, overleaf).

3.59 At the outset, one clear result from these responses may be compared with those at Key Stage 3: girls in Key Stage 4 were more likely to have a clear view about their learning at the next stage compared to their younger peers. Beyond this, the Key Stage 4 responses show more girls than boys at Key Stage 4 planning to remain in traditional subject study (A-levels or the International Baccalaureate), whereas boys were more

Table 10 **Course choices at the end of Key Stage 4**

	Key Stage 4 (looking ahead)			
	Boys	*Girls*	*GCSE group*	*'Vocational' group*
Question: your chosen courses, post16				
All of my studies will be in the form of A-levels	52%	60%	75%	38%
I want to study a course other than a Diploma that develops my skills for employment (e.g. BTEC)	26%	18%	6%	41%
I will choose to do a Diploma, perhaps alongside an A-level	10%	4%	2%	12%
I would like to study for the International Baccalaureate	0%	4%	4%	0%
I am not at all sure yet what I will choose to study but I definitely intend to be on a full-time course at school/college	6%	4%	3%	4%
I hope to enter a job with training or do an apprenticeship	5%	2%	0%	7%
Not yet decided	3%	6%	8%	2%

likely to choose a Diploma or seek to enter a job with training after compulsory schooling. Perhaps unsurprisingly, those in Key Stage 4 whose programme was currently made up solely of GCSE subjects were much more likely to anticipate continuing with this form of study (by choosing A-levels solely or the International Baccalaureate).

3.60 *Likely overall course choices, post-16 across the various schools*
When it came to variances among schools at Key Stage 4, the proportion planning to continue solely with A-levels (other than in 'applied' subjects) ranged from 74% at one of the English comprehensives (School A) to 41% at one of the Welsh comprehensives (School E). At the two selective grammar schools the figures were as follows:

- School C: A-levels only, 60%; 'a Diploma, perhaps alongside an A-level', 15%; an employment-related course, 15%; as yet undecided, 10%;
- School D: A-levels only, 60%; 'an applied subject, perhaps alongside some A-levels', 25%; an employment-related course, 5%; as yet undecided, 15%.

Only at the grammar schools were there students who were as yet undecided at the time of the survey.

3.61 *The degree of difficulty presented by making course choices*
Respondents were next asked how difficult they considered the process of deciding which course to follow at the next stage of learning. Results are summarised in Table 11, overleaf.

3.62 As can be seen, choices were perceived overall by respondents at Key Stage 3 as harder to make than by those respondents at Key Stage 4. When response rates are paired within the two age groups – as either difficult ('very' or 'quite') or easy ('very' or 'fairly') – the perceived easing of the challenge at Key Stage 4 was similar for boys as for girls.

3.63 *The degree of difficulty presented by making course choices across the various schools*
Among Key Stage 3 respondents there was little variation among schools, although it was in the two selective grammar schools (where annual GCSEs scores were much higher than elsewhere) that respondents reported slightly less difficulty in making their choices.[10]

3.64 These questionnaire respondents were asked to provide a short explanation of their perceptions of the difficulties of making choices. In the minority of cases where considerable difficulties were reported

10. It is important to note that our interviews with guidance staff did not suggest that this was because the grammar school students had less access to work-related learning or were provided with a narrower or more deterministic form of careers-related information, advice and guidance.

Table 11 **Difficulty of making course choices**

	Key Stage 3		*Key Stage 4*	
	Boys	*Girls*	*Boys*	*Girls*
Question: how difficult you feel it is to make choices about what you will do next year				
Very difficult	24%	18%	16%	13%
Quite difficult	55%	61%	50%	55%
Fairly easy	21%	18%	22%	29%
Very easy	0%	0%	12%	4%

(11 responses out of 53) this was due to individuals having no clear idea at all what they wanted to do later in life, because desired courses were unavailable or because of the perceived enormity of the decisions required. Another minority group considered such decisions to be fairly easy (12 responses) and here the main explanations given were the ability to gravitate toward that which was enjoyable, held out the prospect of good marks or closely mapped onto future plans. However, most of this age group (30 responses) gave reasons for why choosing options was 'quite difficult'. A range of explanations was provided, the most common pair being concerns about the pressure to consider carefully how choices now would affect the future (10 responses) and the problem of making choices in the absence of any clear plans (9 responses). For some students there were other concerns: having to drop enjoyable areas of work (4 responses), feeling unprepared by the way in which the school had organised the process of decision-making (3 responses), fearing making the wrong set of choices, being concerned about an increased difficulty in the level of study, needing to balance enjoyment and utility, feeling that choice-making was being forced too soon because of the accelerated curriculum being followed and the prospect of friendship groups being broken (one response each). There was no particular pattern in these responses across schools or among school types.

3.65 Among students at Key Stage 4 the overall pattern of response to this question was broadly similar to that of the younger age group but there was wider variation in the responses provided school-by-school, from 41% in one of the Welsh comprehensives (School E) regarding choice-making as difficult ('very' or 'quite') to 80% in one of the grammar schools (School C). Despite this, school type (in terms of pairings of academically selective grammars, Welsh 11–18 comprehensives or English 11–16 comprehensives) was not strongly correlated to this wide range of response groupings. Having said this, the relative ease felt by those in School E was an exception; respondents in the other five schools rated the challenge as difficult ('very' or 'quite') in the range 65% to 80%. Neither was there much variation in the degree of difficulty in making choices anticipated by those at Key Stage 4 who were following programmes comprising solely GCSE subjects compared to those whose programmes contained 'vocational elements'.

3.66 As with the younger age group, these respondents to the questionnaire were also asked to provide a short explanation of their perceptions of the difficulties of making choices. For those regarding choice-making as relatively easy (38 responses out of 110) the reasons given echoed closely those supplied by the students at Key Stage 3 (see paragraph 3.64), although among these 38 respondents were also three students (all in School F) for whom options choices presented no difficulty because they had decided to leave full-time education. This left 70 respondents who explained why they considered choice-making to be 'very' or 'quite' difficult. Response patterns once again echoed those of the younger age group, with the most common reasons for difficulty being concerns about the pressure to consider carefully how choices now would affect the future (26 responses) and the problem of making choices in the absence of any clear plans (20 responses). Other concerns repeated here alongside

Table 12 **Factors considered when making course choices**

	*Overall rank**			
	Key Stage 3		*Key Stage 4*	
	Boys	*Girls*	*Boys*	*Girls*
Question: when making course choices, the things you will take into account are (in order), choosing:				
The type of learning I find most enjoyable (e.g. 'ideas' subjects or 'practical' subjects)	1	1	1	2
Something directly related to what I want to do when I am 18 (e.g. as a bridge to a course at a college or university; or learning leading to skills related to a particular adult job)	2	2	2	1
The type of learning I find easiest (e.g. subjects where I have high marks in Year 11)	4	3	3	3
Something related to an interest I have outside school (e.g. a hobby; a sport)	3	4	4	4
Something my parents will approve of and think would suit me	5	5	5	5

*Based on inclusion as one of the 3 most preferred activities

those of the younger age group were: being concerned about an increased difficulty in the level of study or what specific subjects/ courses would entail (7 responses); having to drop enjoyable areas of work or feeling there was too much choice (7 responses); needing to balance enjoyment and utility, feeling that choice-making was being forced too soon because of the accelerated curriculum being followed, and fearing making the wrong set of choices (one response each). In addition, the following responses were specific to Key Stage 4 respondents: considering that there had been insufficient guidance provided (3 responses) and concerns about finding a college having decided to leave school before the Sixth Form (1 response). There was no clear patterning of these answers in relation to whether respondents were following a curriculum comprised solely of GCSE subjects or one that included 'vocational elements' at Key Stage 4. Neither was there any particular pattern in responses across schools or among school types and this is striking when related to our interviews with those school staff responsible for Information, Advice and Guidance, which revealed a variety of staffing structures and processes.

3.67 The responses of students to our question on the broad theme reported in paragraphs 3.61–3.66 require careful interpretation. If one of the goals of impartial Information, Advice and Guidance is to challenge students' assumptions and make them consider their choices carefully, it may be to a school's credit that a large majority of its Key 3 students see the challenge as difficult (95% of respondents in this age group also agreed that making choices was important and 37% considered it a worry). Similarly, it may not necessarily be desirable that Key Stage 4 respondents in this study viewed choices at that stage as less challenging than their peers at Key Stage 3.

3.68 *The rationale followed by students in making course choices*
Students in both age groups were asked next about the various factors they would take into account when finalising their course choices for the stage ahead and to rank these in order of importance. The results summarised in Table 12, above, show a strong degree of consistency across and within age groups.

3.69 Among respondents at Key Stage 3 the influence of the most commonly selected top priority (learning found most enjoyable) was very marked: 56% ranked it at the head of their list (59% of boys and 54% of girls). When response rates for the highest three influences were aggregated, these revealed

a steady decrease in response rate as items descended. Within this pattern, girls placed the second ranked item ('Something directly related to what I want to do when I am 18') significantly more highly than boys, while the third ranked item ('The type of learning I find easiest') was much more favoured by boys than girls. Reponses to later questions indicated that, at this stage in their school careers, more girls than boys had decided that they wanted to attend college or university at age 18 and were considerably more likely to have job plans in mind (see paragraphs 3.92 and 3.95). Across the schools in the sample the patterns of responses did not indicate that school type was a significant influence over students' priorities when considering how to choose between options.

3.70 Among respondents at Key Stage 4 the enjoyment of a type of learning was also the top influence although, at 48% (45% of boys and 51% of girls), it was less strong than among the younger age group and more valued by the older girls. The popularity of this item was closely followed by areas of learning related to future educational or occupational plans (43% placing this at the top of their list: 45% of boys and 40% of girls, showing that, compared to their Key Stage 3 peers, girls were now even more determined to go to college or university at 18 but were no longer at all as sure about their occupational plans, see paragraphs 3.92 and 3.95). When response rates at Key Stage 4 for the highest three influences were aggregated, these also revealed a close coupling of the two most significant items way ahead of all others: the relation of learning to future plans (82% including it among their first three selections) and source of enjoyment (81%).

3.71 *The rationale followed by students in making course choices, depending on type of Key Stage 4 programme of study*
Of these two priorities among Key Stage 4 respondents, the relation of learning to future plans was more strongly valued by those whose current programme was comprised solely of GCSE subjects, whereas learning as a source of enjoyment was valued more strongly by those whose current programme included 'vocational elements'. Finally, the endorsement of choices by parents, although a generally low priority for all, was more highly valued by boys than by girls.

3.72 Across the six schools there was no discernable influence on questionnaire response patterns relating to school type.

3.73 The rationales among questionnaire respondents for making course choices within the curriculum (reported in paragraphs 3.69–3.71) were discussed in detail by members of the focus groups. To stimulate such discussion members of these groups were asked to comment on the extent to which they felt that the subjects/courses available in the next phase of education appeared to suit them well. As might be expected there was a wide variety of views expressed among both age groups, across schools and regardless of the type of programme being followed at Key Stage 4. Where discernable patterns or clear themes emerged, these are now set out as follows:

- Key Stage 3: discussion by school;
- Key Stage 4: discussions by school and by programme of study type.

3.74 *Key Stage 3.* Among these discussants, those at two of the non-selective schools (School A and School B) remained reticent, except to say that they were content with the choices facing them and had been able to find subjects/courses that they would like to pursue. From the more detailed discussion in the other groups it was apparent that the decision-making process had not been so simple or straightforward for every student. Some said they had been able to choose with relative ease, either because they had been guided by knowledge of their future career aspirations or because they were choosing to continue studying what they enjoyed most. But, for others, deciding what to study next was a more complicated process.

3.75 Students in both of the 11–18 English selective schools indicated some uncertainties perhaps influenced by the fact that, due to the accelerated curriculum they were following, they were a year younger when making decisions than their counterparts in the other four schools. In School C students talked about the enormity of decisions which they perceived would affect the rest of their life.[11] Further difficulties had been occasioned by the timing of the 'options' evening and the parents evening in this school which meant that some students had not been able to consult with their teachers in order to seek guidance as to their suitability for particular subjects. Parental influence played a part

11. Perhaps this was influenced, in turn, by their preference for 'tackling "real world" or "everyday life" problems or situations' (see paragraph 3.26) and a sense that, in a school where only GCSEs were available at Key Stage 4 and students felt under early pressure to succeed in examinations (see paragraph 3.48), exposure to "real world" learning had opened a greater wealth of possibilities than the examinations-focussed curriculum that they were following seemed able to address.

for some, while others were considering the type of learning approach associated with different subjects (e.g. opting for Design and Technology, because 'it's something away from writing'). In School D there was some dissatisfaction felt with the fact it was compulsory to study one of the technology subjects (on this point, see also paragraphs 3.27 and 3.88).

3.76 Discussion ensued across the schools as to how choices should be made and how far enjoyment should be considered a factor. Many students in the two remaining non-selective schools (School B and School F) showed a good deal of interest in pursuing 'vocational' courses such as a Diploma, no doubt stimulated by extensive coverage of these options attested in our interviews with their guidance teachers. These students were keen to try to include variety as well as some contingency options should their planned career path not be possible. However, this enthusiasm was curbed slightly by concerns that they would be restricted from following such a path given their high academic attainment scores. Indeed in one school (School F) students described being 'strongly advised' to include an academic subject amongst their vocational/practical choices but they felt that the commensurate 'advice' was not given to students choosing to study a programme comprising entirely academic subjects.[12]

3.77 *Key Stage 4*. It was quite apparent that all of the Key Stage 4 focus group discussants were approaching decision-making about what to study post-16 seriously and with maturity; their discussions certainly suggested that these were indeed considered choices which they had thought about a great deal.

3.78 Among those attending the *English 11–16, non-selective schools* (the schools in the study with the lowest average GCSE attainment), there were some differences of emphasis between those on the 'GCSE-only' programmes and those whose study included 'vocational elements'. In School A, it was evident that both groups of students were striving to make what they felt were good choices, selecting subjects/courses for which they possessed a genuine interest. This seemed to be a particularly strong consideration for students in the 'vocationally-orientated' group who were clear that they wanted to find a course that would motivate them strongly, rather than to study at college merely for its own sake. In contrast, the preoccupations of the 'GCSE-only' students in this school appeared to be based on ensuring their next choices could subsequently offer them the opportunity to go to university, a consideration which they felt placed on them significant pressure to choose well, given the extent to which such choices needed to help secure longer-term intentions. As was evident in the questionnaire responses related to this point, the main criterion for selections of this kind was a belief on the part of the student that they could do well in the chosen subject, and this was related to picking what they felt to be easier options that were likely to reduce levels of stress. In School B, the more 'vocationally-orientated' students were more concerned than their 'GCSE-only' counterparts to clarify their intended future plans. Some intended to continue with academic study while the majority wished to pursue practical, occupationally-orientated courses such as cookery, sport and plumbing. Meanwhile, the 'GCSE-only' students in this school voiced their concerns about the possibility that they might change their current plans at a later stage and that this might compromise the value of the choices they were about to make for the next stage of education.

3.79 Students in both of the GCSE-only groups in the *11–18 English selective grammar schools* reported feeling either unhappy or unexcited by the choices presented to them. In School C students (who were concluding Key Stage 4 in Year 10, due to the accelerated curriculum being followed) spoke of their eagerness to be able to cease studying certain subjects they had taken to GCSE level and viewed their next set of options as an opportunity to rectify what they felt had been mistakes made when choosing their current subjects and courses at the end of Key Stage 3. Additional remarks included the feeling that there was insufficient choice and that their preferences had been ignored by the school, despite the fact they had been invited to indicate what subjects/courses they would like to pursue. The two groups in these schools who were pursuing programmes which included 'vocational elements' were generally more content with the choices on offer to them. They seemed to experience fewer difficulties when making their selections compared to the 'GCSE-only' students. In School C the more 'vocationally-orientated' students[13] reported being mainly guided by their intended future career plans,

12. '[A problem] that I find quite difficult is that children entered on the vocational route [in our school] can only get a maximum of a C in English, maths and science because of the way that the options are put in, so I've got to watch that the very brightest children, who are capable of an A and B, do not do that vocational route. There's a big juggling act at the moment to just check that we've highlighted [these] children, using our MidYIS scores' (interview with the head of Information, Advice and Guidance: School F).

13. See paragraph 2.12 for the profile of these students.

by prior achievement and by preferred assessment formats. Within this group there was some frustration that various GCSE subjects on offer in Key Stage 4 were not available in Key Stage 5. This was especially the case for those who were now considering changing tack (their original GCSE choices having been made at the end of Year 8, due to the accelerated curriculum) and concerns were raised about embarking on an advanced course without having previously studied in that area of the curriculum to GCSE level. In School D (which also operates an accelerated curriculum) students seemed to feel they had not necessarily been provided with sufficient information about options available to them such as open days at local colleges and this was attributed to a sense that the school was trying to prevent them from changing to a different institution. While some of these students were happy to continue studying at school, others voiced slight weariness that the school's Sixth Form could turn out to be too similar to the feel of 'school' and not enough like a college.

3.80 In the two *Welsh, 11–18 non-selective schools,* of common concern to both groups of students (the 'GCSE-only' and the more 'vocationally-orientated') was the arrangement of the options boxes on the forms they had to fill out. At issue was whether this would allow the selection of those subjects/courses that they really wished to study or, in contrast, constrain choices. It was also notable that, in comparison to the four English schools, all of the focus group discussants in Wales, irrespective of the type of Key Stage 4 programme they were following, had fairly clear ideas about what they would do next, even though they were also keen to try to ensure they were leaving their options open. In School E, several of the 'GCSE-only' students were opting to continue studying at school, while the majority of those in the more 'vocationally-orientated' group were intending to leave for a college of further education (despite the distances that would be involved in such a rural area), either because their school did not offer them the courses they wished to pursue (e.g. carpentry or motor mechanics) or because they felt the college environment offered them a better context in which to mature. When it came to the range of choices on offer, discussants in School E were more mixed in their views in both the 'GCSE-only' and the more 'vocationally-orientated' groups. Some discussants among the former felt there were enough subjects/courses to choose from while others remarked that they had found little which interested them. Among the more 'vocationally-orientated' group, several had experienced difficulty in finding something which they felt would suit them, despite there being a wealth of choice on offer. This they put down to their view that some of the courses had been designed more to enhance the school's public profile than because their inclusion in the curriculum was well aligned to the interests of a sizeable body of students. As evidence for this, they pointed to the small number of students following the BTEC in Construction which was offered.

3.81 *The considerations that most weigh with students when making course choices*
The ways in which school students receive and act upon Information, Advice and Guidance about their future learning and career options are complex. In our study – through interviews with school staff as well as through data generated by students – we sought to identify how 'academically-able' students experience the guidance they receive at two crucial points: Key Stage 3 students selecting the options which would come to comprise their programme of study at Key Stage 4; and Key Stage 4 students considering their learning/employment options beyond the compulsory phase of schooling. Our students' questionnaire results allowed to us rank the strength of influence of various factors in this process, as follows.

3.82 As shown in Table 13 (overleaf), there was considerable continuity across the rankings provided by both male and female questionnaire respondents in Key Stage 3 and Key Stage 4 and, overall, experiences and outlooks across the age groups were clear. Students reported very strongly that they had the self-confidence to make their own choices and that their enjoyment of learning was a high priority (especially among the younger age group). Conversely, teacher support was seen as a relatively weaker influence at Key Stage 3, while parental approval was of low and decreasing importance and, by a large margin, choosing the options being followed by close friends was the least important of all considerations.

3.83 Beyond these strong similarities in outlook, older students, as might be expected, reported being more inclined to choose options based on clearer post-school plans

Table 13 **Influences on course choices**

	Overall rank			
	Key Stage 3		*Key Stage 4*	
	Boys	*Girls*	*Boys*	*Girls*
Response: I 'agree'/'strongly agree' that:				
I know my own mind and can decide for myself what I should do in Key Stage 4/post-16	2=	2	1	1
My best option is to choose the thing I find easiest and most enjoyable	2=	1	2	4
I need to choose those subjects in which I can get the highest marks possible in Year 11/13 exams	1	4	5	3
If my teachers knew me better I would feel happier than I do in following their advice	4	3	6	5
It is important to me that I like the teachers who will be teaching the options I choose	5	5	7	7
I already know what I want to do after Year 11/when I am 18, so it's just a question of choosing options in preparation for that	6	6	3	2
My teachers know me very well and their advice is as good as it could be	7	7	4	6
I need to choose something of which my parents will approve	8	8	9	9
I don't feel that I have enough help in deciding what to do next year	9	9	8	8
It is important to me that some of the options I choose are also those my close friends choose	10	10	10	10

('I already know what I want to do…') while the roles of teachers appeared more nuanced for this older age group. Liking the teacher responsible (a factor strongly associated in the earlier answers of both age groups concerning motivation to do well in a subject) was less important for the Key Stage 4 respondents when it came to choosing options for the next phase. Moreover, compared to Key Stage 3 respondents, this group also considered that their teachers knew them better, with the result that their advice was more to be relied upon.

3.84 Variances between the male and female students were weak but one or two are apparent in the data. At Key Stage 3, boys were more concerned to choose options likely to strengthen subsequent exam success, a concern that was strongly reversed among Key Stage 4 respondents. This may be explained by the Key Stage 4 boys reporting more often than girls that they felt better known by their teachers and thus in receipt of the best possible advice; boys were also much less influenced by whether they liked the teachers concerned when making future choices in Key Stage 4. Among the female respondents, clarity about future plans had developed more strongly. However, girls at Key Stage 4 were significantly more likely to feel poorly understood by their teachers and, by this age, were also significantly less likely either than boys of the same age or girls in Key Stage 3 to link their future plans to types of learning that they found enjoyable.

3.85 The focus group discussions also elucidated some of the foregoing findings. Many discussants at Key Stage 3 across all six schools shared a general view that good choices to be followed in Key Stage 4 required some clarity over individuals' future plans. In the main they talked with careers in mind, though some were thinking about courses of higher education they might study, and this had helped these younger students to choose relevant and necessary subjects/courses. Some individuals in School D (younger respondents following an accelerated

curriculum) said they thought it was helpful to keep future plans in mind when making their decisions, but felt it was not vital to have these clearly worked out at this stage. Yet for these students, as for many others across the focus groups and for a majority of the questionnaire respondents, two key factors were cited as central in influencing their approach to making these decisions: choosing to continue areas of study they already enjoyed and in which they had already secured high marks. In four of the schools (schools B, D, E and F) a number of students mentioned that parents' advice was also taken into account and that, in the main, their parents had guided and supported their decision-making. Meanwhile others, (notably in School B and School F) expressed a particular keenness to be as independent as possible from such influence and to make option choices without parental help. In addition, students at two of the schools mentioned the influence of their teachers. In School B there had been discussion of choosing one of the Diploma courses but after speaking with their teachers and hearing that the courses may not continue, some students had started to reconsider this option. By way of contrast, in School F some discussants said they would have liked support from their teachers but, instead, had simply been directed to speak to older students to glean insights into their experiences of the subjects/courses they were interested in following (a process which they felt had been unsatisfactory).

3.86 Among discussants at *Key Stage 4*, enjoyment was especially important to many students, (particularly strongly expressed by those in the 'GCSE-only' groups in School B and School C), such that a main consideration was to choose subjects or courses that they liked. In some cases serendipity prevailed, where the subjects or courses that were felt to be necessary coincided with subjects or courses that students also enjoyed. This, however, was not a majority experience and those who talked about this trade-off explained that they would try to ensure that their selection encompassed both usefulness and enjoyment. Beyond this headline point, there was consensus within all six schools (and from students in both the 'GCSE-only' groups and the more 'vocationally-orientated' groups) that possessing knowledge of future plans, whether this was in relation to specific occupations/career paths or, more generally, to subsequent study including at university, could be of valuable assistance when choosing post-16 options. In this context, some students spoke about how this had helped to guide their selections and/or assist with narrowing the wealth of choice put before them, while others said that they either did not yet have clear plans for the future or that other factors were exerting greater influence over their thinking. Five such factors were mentioned specifically.

- Teacher influence was significant for several students (notably, some of the 'GCSE-only' students in School C and School E). Points here ranged from how likeable teachers made learning more enjoyable, so making this a key consideration, through to the avoidance of subjects/courses in the future if the current teacher was not displaying a positive and encouraging attitude or where it seemed that, at the point of decision-making, the teacher was less concerned about student welfare than with, for example, securing recruits for the course they were to teach.
- High prior attainment in a subject was also important (notably, for some of the 'GCSE-only' students in schools A, B and F and some of the more 'vocationally-orientated' students in School C).
- Retaining flexibility was similarly valued amongst both groups (the 'GCSE-only' and the more 'vocationally-orientated') across all of the schools, where the concern was to ensure that options were not narrowed excessively should career intentions change (and where, in School B, this appeared to deter some of the 'GCSE-only' students from considering seriously the more 'vocationally-orientated' courses available to them).
- 'Employability' was mentioned, with both groups speaking of choosing options which, they believed, might advantage them in a competitive labour market.
- Finally, ability to manage workload and potentially competing deadlines was also of some concern (among the 'GCSE-only' groups only).

3.87 When these older focus group discussants were asked about the extent to which family had influenced their thinking, there were quite mixed responses. A number of students (mainly in the 'GCSE-only' groups) indicated that their parents had sought to provide advice, yet in the main they seemed quite adamant they wanted to make subject/course choices for themselves, and felt confident they

could do so. Such comments echoed the very strong outlook of this kind demonstrated in the questionnaire response reported in paragraph 3.81. For some discussants this self-confidence was especially important, such as among those in the 'GCSE-only' groups (in schools A, D and F) where the view was that neither sufficient information nor advice had been provided for making informed decisions. In such cases other resources had been accessed, for example through seeking the advice of elder siblings, talking to people working in a relevant industry or simply trying to research information for themselves.

3.88 *The considerations that most weigh with students when making course choices across the various schools*
When the questionnaire dataset under this heading was analysed, school-by-school for both Key Stage groups, one pattern stood out strongly from the remainder. At one of the single-sex grammar schools (School D), where students were being introduced to areas of study that challenged gender patterns in occupational uptake, students reported the lowest levels of appreciation of the help received in making choices, were least likely to consider it important to choose options designed to secure them the highest marks in subsequent exams and, by a significant margin, were the least likely to believe that their teachers knew them very well. The older age group at this school was also the least likely to choose options that would be easy or were already most enjoyable, or to have fixed ideas about what they would be doing after leaving school. No doubt connected to this last point, these Key Stage 4 students were also the most likely to seek advice from parents and to feel the need to like the teachers who would be teaching the options they chose to study at the next stage. Taken together these findings suggest that the curriculum innovation being championed by the school was accompanied by the greatest level of uncertainty about the future across the six school groups. As we commented in relation to the analysis of data reported in paragraphs 3.61–3.67, these results need careful interpretation. It may be a mark of excellent practice that students in this school are shaken from their assumptions and challenged to link their curriculum choices to a thoroughgoing exploration of their potential interests and breadth of options, and nothing in our interviews suggested that students at this school were receiving less thorough Information, Advice and Guidance from staff. In this light it is probably no coincidence that students in this school reported later in the survey the highest agreement with the statement 'it matters a lot to me that the kind of things I enjoy at school are part of the job I do eventually'.

3.89 The data for this question probed perhaps most thoroughly in our questionnaire the relation of school culture to aspects of the guidance process. There were no clear patterns based on school type (i.e. data aggregated to the pairs of grammar schools, Welsh comprehensives and English comprehensives). Rather, responses to the items in this question served to highlight the individuality of each school culture and how this is reflected in responses students make to questions which probe the considerations that most weigh with them when reaching decisions about future choices in learning and potential adult occupations. In this context, the specific way in which Information, Advice and Guidance was provided was quite varied and, where this may have influenced those student views specific to individual schools, we have noted this at various points in the preceding paragraphs.

3.90 *The considerations that most weigh with students when making course choices, depending on type of Key Stage 4 programme of study*
At Key Stage 4 there was some variation between questionnaire respondents following a programme comprising solely GCSE subjects and those whose programmes included 'vocational elements'. Those in the 'GCSE-only' groups were more influenced in their choices by the kind of learning they considered would be easiest/most enjoyable at the next stage, whereas those in the more 'vocationally-orientated' groups were much more likely to have made choices based on clearly formed plans for when they were aged 18+ (with the result that this group was less likely than 'GCSE-only' students to prioritise learning that they expected to be easiest/most enjoyable).

Plans for after leaving school

3.91 Our final set of questions asked students about their plans on leaving school: whether what they would do next was yet clear; whether a specific occupation was yet in view; and how much the nature of their school

Table 14 **Intention to go to college/university**

	Key Stage 3			*Key Stage 4*		
	All	*Boys*	*Girls*	*All*	*Boys*	*Girls*
Question: 'once you have left school/are 18 years old, do you plan to go to/carry on in college/university'?						
Yes	74%	62%	70%	78%	71%	86%
No	2%	3%	12%	4%	3%	6%
Don't yet know	25%	35%	18%	17%	24%	9%

learning to date was likely to influence these future directions.

3.92 *Immediate plans on leaving school*
Questionnaire respondents in the two age groups were asked if they intended to remain in full-time learning at college or university once they had left school/turned 18. The results are summarised in Table 14, above.

3.93 Across both age groups more girls than boys were already set on continuing in full-time learning two key stages beyond their current stage; moreover, by Key Stage 4 the resolve of girls to stay in full-time learning had strengthened compared to boys.

3.93 *Immediate plans on leaving school across the various schools and depending on type of Key Stage 4 programme of study*
School-by-school responses to this set of questions showed considerable variation and did not display patterns attributable to school type. Moreover, within each school responses between the age groups were also highly varied due to the different size of groups at each school that, as yet, had not made up their minds about post-school plans. In three schools (including both selective grammar schools) the older age group was more likely to have clear plans in mind, while in the remaining three (the two English comprehensives and one of the Welsh comprehensives) the older group was less likely to have done so. It was also the case that there was greater uncertainty among those at Key Stage 4 and among those who were following programmes that included 'vocational elements'. As part of this, the intention to remain in full-time learning post-16 was stronger for those who were following programmes comprising solely GCSE subjects, compared to students whose programmes included 'vocational elements'.

3.95 *Possible adult occupation*
Linked to the previous question, respondents were next asked the extent to which they yet knew the likely job they might seek as adults (see Table 15, overleaf).

3.96 As might be expected, a questionnaire respondent's likelihood of having an occupation in mind increased with age but in our study it was notable that, compared to female respondents at Key Stage 3, fewer girls at Key Stage 4 already knew the job or career that they intended to seek.

3.97 *Possible adult occupation across the various schools*
A large proportion of students in both age groups expected to continue in full-time education after the next stage of learning (i.e. post-16 or post-18) and at Key Stage 4 only 4% had already decided not to pursue full-time higher education. Among the individual schools, the extent of remaining uncertainty about such personal plans ranged from 10% of respondents at the two grammar schools (Schools C and D) to 29% (at school F), a profile broadly in line with the record of exam success in each school (where average attainment was highest more students already had clear post-18 plans).

3.98 *Possible adult occupation, depending on type of Key Stage 4 programme of study*
At Key Stage 4 the likelihood of having a specific job/career in mind was much stronger among students whose programmes included 'vocational elements' (50%) than for those who were following programmes comprising solely GCSE subjects (26%).
In contrast to the previous question (see

Table 15 **Career plans**

	Key Stage 3			*Key Stage 4*		
	All	*Boys*	*Girls*	*All*	*Boys*	*Girls*
Question: the extent to which you know what you might want to do for a job once you are an adult:[14]						
I already know what job I intend to seek	21%	10%	32%	38%	47%	29%
I have a general idea of the kind of thing I'd like to do for a living	37%	35%	40%	49%	41%	46%
At this stage I have no clear idea yet about what I might want to do	33%	38%	29%	12%	10%	13%

14. There were a number of respondents who chose not to answer or who missed this question.

Table 16 **Influence of preferred style of learning on career plans**

	Key Stage 3			*Key Stage 4*		
	All	*Boys*	*Girls*	*All*	*Boys*	*Girls*
Question: 'To what extent do you believe that the kind of learning you enjoy at school should be part of the job you do as an adult (e.g. working outdoors; desk or computer work solving problems; practical work involving teams?)':						
It matters a lot to me that the kind of things I enjoy at school are to be found in the job I do eventually	70%	79%	61%	54%	48%	60%
I don't see schoolwork as being very similar to the things I might do in my chosen career	12%	7%	18%	33%	38%	27%
I can't really tell yet what the link is between the things I enjoy and do well in at a school and how this might influence my choice of career.	18%	14%	21%	12%	12%	13%

paragraph 3.94), although school-by-school responses showed considerable variation and did not display patterns attributable to school type, in this case there was more consistency in response between age groups in each school.

3.99 *Links between learning enjoyed at school and that sought in adult work*
The final item in our questionnaire concerned the extent to which respondents expected the nature of their school learning to date to influence their eventual choice of occupation. To elicit this, a very specific question was posed:

3.100 The responses to this question (summarised in Table 16, above) are striking. A majority of respondents in each age group valued strongly a link between the kinds of learning enjoyed at school and future job content. This was stronger at Key Stage 3 (70%), the older respondents being less likely (54%) to want or expect their adult work role to mirror things enjoyed at school. Moreover, this headline result was strongly influenced by the clear trend in the responses of boys within the two age groups. Male respondents at Key Stage 3 wished very strongly that the link might be preserved while those at Key Stage 4 had significantly relegated its importance and likelihood; in contrast, for girls it remained the desire of a stable majority (60%).

3.101 *Links between learning enjoyed at school and that sought in adult work across the*

various schools and depending on type of Key Stage 4 programme of study
School-by-school responses to this question were fairly consistent within both age groups and there was no clear pattern in the questionnaire responses which could be attributed to school type. However, at Key Stage 4 the belief that adult work roles should mirror the kind of learning enjoyed at school was stronger among those following programmes which comprised solely of GCSE subjects, compared to those whose programmes included 'vocational elements'.

3.102 There was an opportunity in the focus group discussions to explore further one aspect of this final theme. In so doing, we asked discussants in both age groups about the extent to which their study preferences and choices were influenced by their sense of how they learned most effectively.

3.103 In the focus groups at Key Stage 3, discussants in five of the six schools felt they had a good sense of the type of learner they are, the ways in which they preferred to learn and how this helped them to produce their best results. In the main, the evidence cited to indicate this tended to be the grades they had attained (schools A, D and E) and/or experimentation – trying out different approaches to learning and attempting to recognise which seemed to suit the individual the best (School B and School F). Students in School C reported having taken a test designed to provide a guide as to the type of learner they were (the results being shared with their teachers) and these students felt that the results generated tended to be a good match with their self-perceptions. More generally, discussants across these focus groups (in schools A, B, C and D) spoke of preferring to learn by being involved, for example through practical and physical activities: as one put it: '*because doing more physical and practical stuff makes you feel more involved with the rest of the class and instead of just sitting there writing down*' (School D). In School F, learners spoke about using their parents as a guide in this area where the most commonly-followed approach seemed to be memorisation or rote learning, for example intensive study of text books or reading and re-reading in a manner similar to learning lines for a performance.

3.104 Despite these younger discussants gleaning some indication of effective aspects of their learning in various subjects based on their marks obtained through assessed work, their more general comments about this issue revealed discontent. This stemmed from a feeling that they were not receiving adequate guidance from their teachers. Indeed, it was evident that students looked to teachers for support and guidance about effective learning. However, they felt they were being given very little feedback from tutors and, even though all students received an individual school report, there were feelings that these were not always personalised (in School D, for example, it had been discovered that the same comments had been written about many or all of the students in certain groups).[15]

3.105 Among the focus groups convened at Key Stage 4, there were very few students, across schools or type of programme being followed, who claimed they did not really know what type of approach to learning suited them best.

3.106 A minority of 'GCSE-only' students reported learning most effectively through a written approach while many others stated that they preferred using practical and/or visual approaches to learning. Practical methods deemed to be effective included carrying out an experiment or doing something in which the student was actively involved. Moving around physically was linked to improved recall of an activity and its results:

'my biology teacher … goes through what we are learning and he sort of puts it to everyday situations and that helps most of us learn it and that … way certainly helps, it definitely helps me' (School C).

Other preferences included activities which did not involve predominantly working with a textbook and writing things down:

'Too much writing… the experiments I find are much better to learn from because they are actually doing it and you see the things yourself instead of just being told, but there isn't enough time to do them all the time' (School F).

These students reported benefiting more from being able to engage with a Powerpoint presentation, a video or a diagram. In

15. This dissatisfaction with the quality of assessment received from teachers mirrors that experienced by undergraduates who, consistently in recent years, have signalled through the National Student Survey that they consider 'assessment and feedback' to be the weakest aspect of the teaching they experience: see Williams and Kane, 2008.

several cases, students reported that their preferred approach varied, depending on the subject being studied. In the main and as with their younger peers, these students' awareness of the kinds of learning that suited them best derived directly from experience: having tried different methods and learning what seemed to work best. Often this appeared linked to motivation: by perceived levels of enjoyment; by how interested students felt they were in a particular course area; and/or by the grades they attained. Overall, interest and enjoyment were key: students were keen to be engaged and they judged this by how well their attention was held.

3.107 Among the students following more 'vocationally-orientated' programmes there was also only a small number who reported learning best using a mainly written method – and this view was counterbalanced by the small number who remarked that they actively found this to be less interesting and/or an unhelpful approach to learning because it did not aid retention of information. As with their 'GCSE-only' peers, many of these students seemed to prefer practical ways of learning which they considered to be most beneficial for learning. This might entail the opportunity to be involved in a task or challenge, or an activity such as a demonstration where students could see something happen in front of them which allowed a visual interpretation of what was being taught. One student commented that this 'made more sense'.

3.108 In the English 11–16 non-selective schools some of these more 'vocationally-orientated' discussants also remarked that they valued opportunities to be outside the classroom, such as for a PE or Art lesson. In both of the English 11–18 selective grammar schools, some (but not all) students reported being given a test or a quiz at school, designed to inform them of the kind of learner they are. In one of these (School C) students seemed slightly puzzled about the activity, saying that it did not seem to connect with anything else that they were doing at school. Nonetheless, the students who had taken such a test felt that the results generated were a good match to their self-perception. Meanwhile, some respondents spoke of how they preferred different approaches to learning for different subjects. One commented that a preferred approach to learning had become clear on the basis of varying enjoyment derived from different curriculum experiences. Others mentioned having been influenced by the approach to learning that seemed to work most easily, while two students felt that preferences may be influenced by the type of environment from which a student comes, for example living on a farm where practical, hands-on learning was a daily occurrence.

Chapter 4
Contexts for the research

1. Orme, 2006: 47–49, 53–55, 66, 166–67.
2. Green, 2009: 55–56; O'Day, 2007: 415.
3. Orme, 2006: 68, 66.

4.1 One of the contexts for our study is the findings of recent research into how young people in British secondary schools navigate the curriculum and make choices among the variants they are offered from the age of 13/14 onwards. Another more fundamental context is why these opportunities take the form they do and how they are justified to young people. For this a much longer perspective is required. And without considering this historic legacy, there can be no clear vision of the possibilities for models of effective practice.

4.2 Accordingly, this section of the report reviews key strands in the cultural thinking that has led to the current polarisation of the secondary school curriculum between the 'academic' and the 'vocational'. It does so by sketching briefly the legacy of European medieval and humanist education in England and Wales to *c.*1830; how that legacy was transformed by the cultural values that characterised Victorian ideas about merit and ability, and the kind of educational institutions and curricula which could best reflect them; how, in the twentieth century, a science of intelligence arose which acted upon the Victorian legacy of ideas and institutions; and how, over the last 40 years, these dynamics have played out in British schooling so as to create our current landscape of muddled thinking and jostling government policies. The section concludes by reviewing two aspects of the contemporary scene. First, there is a short review of the measures of ability currently used among the 11–16 age group in England and Wales. Second, there is a brief summary of recent UK research on the learning choices that secondary school students make.

Historic continuities in thinking about the secondary school curriculum

The legacy of European medieval and humanist education in England and Wales to c.1830

4.3 Schooling in western Europe to the year 1000 was confined to a small elite in religious orders or the households of the nobility but served the entirely practical purposes of supplying skilled men for monastic life or political service. Singing, reading and, for administrators, being able to write were key skills to be mastered. By the twelfth century (and probably a good deal earlier) other schools in England had become places accessible to the public and had diversified markedly, establishing the mix of institutions and related curricula that were to remain in place until the mid-nineteenth century. By the fifteenth century, schools were being accessed by boys from most groups in society, other than those at the very top and the very bottom, as well as by girls.[1]

4.4 Already there was a hierarchy of school-types linked to the ambition, talent, interests and resources (social and economic) of would-be pupils and their families. Schools offering career preparation of various kinds within the church provided manpower for the largest institution in medieval Europe. Those training pupils for business occupations in English secular society were attuned to the rhythms of the national economy and took their place among schools of a similar kind that varied across the economies of Europe. In contrast, schools which taught Latin grammar (for boys only) were part of a pan-European literate culture already becoming identified with an emerging professional class.[2]

4.5 The schools teaching business skills (for trade, administration and, at the 'top end', a gentlemanly legal education) were more practical and less pretentious than the grammar schools. They also had highest status (the rudiments of Latin were required), a sliding scale of fees and illustrated the extent to which secular education in medieval Europe was highly attuned to the structure of adult occupations. Meanwhile, the grammar school was both liberal and practical – fluency in Latin was extremely useful in everyday life – and, compared to schools teaching merely reading and song had more status, the subject matter being more complex to master and requiring sophisticated teaching.[3] It was these schools which, from the mid-fifteenth century, attracted numerous patrons

and benefactors thus becoming 'endowed', so as to reduce or eliminate fees.[4] Humanist learning, whereby Greek was added to the curriculum of the better-resourced institutions, was also a literary Europe-wide impetus and this started to influence grammar schooling in England from the 1470s and slowly extend what counted, in the upper forms of the schools by the mid-sixteenth century, as preparation for university. All grammar school learning was vocational and most was immediately practical. At the top of the more prominent schools, where pupils needed to be assiduous and display particular capabilities, such schooling might appear abstruse, but vocational purposes, while less immediate, were no less present. Indeed, it constituted the mental furniture which, by the later sixteenth century, had been agreed by the intellectual elite as defining the university candidate, whether he was to follow a traditional professionally-orientated undergraduate curriculum (the church, the law or medicine) or take a more general course of study designed to prepare him for political leadership in the community.[5]

4.6 The institutional structure of varied, secular and publicly-accessible schools established in medieval England by the 1450s prevailed, with only minor change, until the state began to regulate schooling and expand access to it four centuries later. Private schools of all kinds (trade, business and grammar) continued to flourish throughout this period. In different ways these all provided business or other occupational preparation, at a wide range of social levels and for some girls as well as for boys. Many were short-lived, serving particular markets or relying for their survival on the drive of individual teachers.[6] In contrast, the curriculum of the endowed grammar schools was much more stable and was, for three centuries from the mid-sixteenth century, influenced by (and in some cases tied to) a fundamentally conservative culture of student admissions and requirements in the universities, probably reinforced by reverence and ambition on the part of a greater number of aspiring parents. However, this is not to imply that the curriculum experienced by generations of grammar school pupils was entirely static. Within the grammar schools there was a continual updating of curriculum detail, serviced by text books written by the most enterprising teachers[7] and, as with other types of institution, many grammar schools were temporary, private affairs existing alongside those which were permanently endowed.[8]

4.7 In comparison with the continent, where such education served mainly an aristocratic elite, the English grammar schools and universities had accommodated during 1560–1640 a surge in sons of the landed gentry class and of the 'middling sort' of professionals and merchants.[9] This was not maintained thereafter and the main tension to be accommodated within the overall structure of English post-elementary schooling, from the late-seventeenth century onwards, was the demand that it should cater for the interests of new social groups – dissenters and an expanding commercial class, most notably – who saw a need to develop new branches of useful school knowledge, scientific and practical, in the context of changing occupations and, later, rapid urbanisation.[10]

4.8 The dynamic that resulted from this in the 150 years after 1690 was elaborate. The leading endowed schools retained the continuity of their links with the universities and undergraduate study, the most prestigious evolving into 'great' schools at the vanguard of the Victorian 'public school' movement. Other grammar schools with resources to spare broadened their curricula to embrace new subjects, such as mathematics and English grammar, but many more ossified and became caught in spiral of a decline, often abandoning classics completely in the face of stiff competition from more commercially-minded private establishments.[11] The latter included schools set up by non-conformists who, being barred from the universities, also had to provide their own post-school academies which set students on courses of study parallel to, but culturally separate from, education at Oxford and Cambridge.

Victorian ideas about merit and ability

4.9 Prior to the reign of Victoria, schools and universities in England and Wales had been self-regulating – as private enterprises, as religious enterprises or as foundations within the framework of charity law. However, the very rapid social and economic changes brought about by large-scale industrialisation and its resulting politics, were placing these arrangements under strain. Not only were there movements to broaden the base of education to embrace the majority of the labouring poor, but the fitness of all post-elementary education was increasingly being

4. *Ibid*., 55–68.
5. Orme,. 2006: 119; Green, 2009: 57–58, 192–94; O'Day, 2009: 89–94.
6. Green, 2009: 58–59, 63.
7. *Ibid*., 63, 194, 83–86, 364, 34–52, 101.
8. *Ibid*., 2009: 63–65.
9. *Ibid*., 57–58, 76–77, 194.
10. *Ibid*., 68, 300.
11. Lawson and Silver, 1973: 195–96, 251–52, 203–05.

called into question. As much as anything, this tension arose from the detachment of school learning from direct vocational preparation.

4.10 At this point, ideas were set in train that were to become a highly influential backcloth for the plethora of state-led reforms that began to be unleashed on the existing structure of education from the 1850s. These ideas have culturally specific origins but retain their resonance today. They sought a reconnection of advanced-level schooling to vocational preparation in a fast-moving world and are an important context for understanding the implications of the empirical research set out in the later sections of this report.

4.11 Since the mid-sixteenth century the relative status of endowed schools and their curricula had been defined by their links to the universities. However, the relative torpor of Oxford and Cambridge in the eighteenth century (linked to their exclusion of non-Anglicans) was becoming a problem. Stirrings from this decline began to be evident in Cambridge from the 1740s when the results of examinations in mathematics were printed for the first time; a decade later answers in mathematical reasoning were required to be written, and written in English, supplanting the traditional oral examination in disputation conducted in Latin. Oxford's examination of a set of classical subjects termed Greats followed from 1800, although this took a written form (in Latin and Greek) only from the 1820s.[12]

4.12 From these slow beginnings a rising tide of formal tests began to seep into a range of Victorian institutions, in the form of competitive-entry examinations (for example, to the Indian Civil Service, from 1854, and the Home Civil service, from 1870) and in examinations set by universities designed to test the knowledge of pupils in schools ('the Locals'), inaugurated by Oxford in 1858. To begin with, the latter were used as a means to raise standards in the grammar schools, only becoming a nationally codified and unified system with the introduction of the School Certificate in 1918, a school-leaving award managed jointly by seven separate university boards and designed to replace their various matriculation examinations.[13] However, the leading endowed schools of the 1860s largely ignored the Locals and continued to secure places for their pupils at the two ancient universities via recommendation or the sitting of scholarship examinations set separately by the various Oxbridge colleges (and where the required knowledge of Greek served to limit the pool of potential candidates).[14]

4.13 Whilst the subjects set had important influence over the curriculum taught in schools, more significant in the long run were Victorian ideas as to who examinations were for, what they tested and what they couldn't measure.

4.14 One of the chief promoters of competitive examinations for the civil service, Thomas Babington Macaulay, referred in speeches at various times during the 1830s-1850s to the task of identifying 'talent', 'diligence', 'superior powers' and 'intelligence', while Frederick Temple, headmaster at Rugby, spoke in 1865 of pupils of 'real ability' being identifiable on a 'scale of intellect'.[15] Commissioners appointed to reform the endowed schools wrote a couple of years later of the 'ability' of such pupils, the 'clever scholars' who should continue to study Latin, some of whom should be admitted by scholarships open to 'merit'. In proposing competitive entry to the home civil service (in 1854), Stafford Northcote envisaged an examination 'so conducted as to test the intelligence, as well as the mere attainments, of the candidates'.[16]

4.15 Helping to forge this loose set of ideas into a working ethic was Benjamin Jowett. A fellow (and later Master) of Balliol College, where he had been an undergraduate with both Temple and Northcote, Jowett was an early populariser of Plato whose ideal of education provided on three separate levels (gold, silver and copper) was to be commended by the ('Taunton') Commission charged with reforming endowed schools on which both Temple and Northcote served. To this outlook, Jowett added his own strong disdain for commerce.[17]

4.16 This Oxford connection might have exerted only a broad policy influence over the organisation of schools had not Francis Galton, a scholar with private means based in London, published *Hereditary Genius* in 1869. This essay became hugely influential, in due course inaugurating a world-wide science of psychometrics which still flourishes. For our purposes, its importance lies in Galton's effort to take Macaulay's loose terms and propose a concept of 'ability' that fused character, intellect and disposition.

12. Roach, 1971: 13; Jenkyns, 1997: 513.

13. Bruce, 1969: 74–86; Roach, 1979: 51; Watts, 2008: 60–61. The Locals were known at their launch as the 'middle-class' examinations and, by the mid-1860s, were patronised both by private secondary schools and all but the most prestigious of the endowed schools, Roach, 1971: 85, 240–41.

14. Roach, 1971: 87–88; Montgomery, 1965: 6, 150. From its origins in 1836, those seeking entry to the University of London (where no religious tests were imposed) were supposed to sit written exams in nine subjects but the requirement was not being enforced in the 1850s, Montgomery, 1965: 59. After 1873 the leading endowed schools patronised their own largely separate examination board, the Oxford and Cambridge Joint Board, Bruce, 1969: 83–84.

15. Sutherland, 1984: 98–99, 104.

16. *Ibid*., 106, 100. In 1864 Matthew Arnold celebrated the 'real mental ardour' of the middle-class, while the commission on secondary education, chaired by James Bryce, spoke in 1895 of the need for First Grade schools to stretch those with 'capable and promising minds', McCulloch 2007: 20, 17.

17. Szreter, 1996: 149–52, 157–58; McCulloch: 1991: 10–17. The permanent secretary at the Education Department of the Privy Council overseeing the Taunton Commission, R.R.W. Lingen, was also a Balliol man.

Prestigious examinations would be a measure of this but so, too, considered Galton, would be worldly success based upon 'a great deal of very laborious work'. The strain in this thinking that emphasised heredity reflected the influence on Galton of social Dawinism, while that which laid stress on effort chimed with powerful ideals energising the public schools (both endowed and proprietary) that emerged strengthened from the work of the Taunton Commission of 1864–68 and which were becoming the nurseries for those who would administer Britain's empire overseas.[18]

4.17 In this way two important concepts were fused. The first envisaged a society based on merit via the identification of 'ability'. This, it was assumed, was unequally distributed and was something that competitive examinations could help establish and codify. The second was designed to maintain a different kind of social hierarchy. At its apex was an intellectual elite of which Galton's extended family circle (including the Darwins and the Macualays) formed a part and which sought to impose a model of Platonic hierarchy on secondary schools through the intervention of government commissions of enquiry.[19] In this way Macaulay's earlier thinking, influenced by the Scottish Enlightenment, that merit might be sifted and selected systematically across all schools was, in the intellectual ferment of mid-nineteenth-century England, diverted to serve an institutional hierarchy, respective membership of which determined the level at which individuals could play their part in society. Within this hierarchy leadership roles, at home and overseas, were reserved for the gentlemanly products of the public schools and Oxbridge.[20]

4.18 Arising from the intellectual milieu, Scottish Enlightenment ideas of selection through intellectual merit had become bent in England to a model of social hierarchy in which 'character' came to be prized above examination grades. In the process, this had involved the rejection of alternatives that were available. For example, contemporaries were aware of the Prussian and French practice of setting national school-leaving exams and the advantages this offered both for the efficient teaching of pupil knowledge and for servicing state employment. Yet it was the unusually high degree of self-regulation of the English universities which, ultimately, government advisers preferred as the means to govern secondary schools 'from above'.[21] And this ensured, among other things, that the definition of merit and ability – and their relation to character – would continue to be worked out among the universities, public schools and reformed grammar schools on a *laissez-faire* basis rather than through state intervention.

4.19 Structural reform of education and its expansion occurred in the nineteenth century in all industrialising countries. But, compared to England, nowhere was the hierarchy more finely-graded according to income, class and religious impulse, or the subject curriculum in secondary schools more strongly patrolled from the universities, or the informal curriculum (with its emphasis on leadership and 'character' and its fusion of middle-class and aristocratic values) more intensely promoted than in the fee-paying endowed and proprietary 'public' schools. It was an edifice that supported and legitimated the nation's status as the richest, most urban and most commercial country on earth. When combined with strong economic liberalism, it also made Britain, by international standards, a very late provider of universal elementary education for the working poor.[22]

A twentieth century science of intelligence and its influence over English secondary education

4.20 At the heart of this commercial empire was a confident intellectual class, strongly influenced by the science of classification and beginning to turn its attention to the nature of human intelligence and how it might be measured.

4.21 Galton is now mainly remembered for his eugenic ideas, but during the 1870s and 1880s he revolutionised thinking and technique in statistics, the refinement of which was taken up influentially in the next two decades by Karl Pearson (in London in relation to heredity) and Charles Spearman (in Guernsey, Leipzig and London in relation to psychometrics). On this foundation the beginnings of modern intelligence testing were established, being devised in Paris by Alfred Binet and Theodore Simon during 1908–11, revised in Breslau (Germany) by William Stern in 1911 in the form of Intelligence Quotient (IQ) tests and further developed and utilised by Lewis Terman in California on a massive scale with army recruits during the First World War.[23]

18. Sutherland, 1984: 34–39, 113; Szreter, 1996: 132.

19. Sutherland, 1984: 115; Szreter, 1994: 160, 163; McCulloch, 2007: 15–16.

20. Sutherland, 1984: 100; Szreter, 1994: 160–61, 165, 163.

21. Roach: 1971: 12, 106, 253.

22. From 1872 in Scotland and 1880 in England and Wales, Anderson, 1999: 216; Simon, 1965: 112.

23. Sutherland, 1984: 115–17, 123–27; Mackintosh, 1998: 7–17.

4.22 Since 1911 the use of psychometrics based on IQ has been very extensive and very controversial, theoretically (is there such a thing as unitary 'general intelligence'?), technically (can we isolate the respective influences on test scores of 'nature' and 'nurture'?) and empirically (when applied, for example, to the comparison of results between social groups).[24] In the context of our study the crucial dimension is the relation of mental tests to school attainment measures and in particular, the linkage between what mental tests measure and the working methods of different secondary curriculum subjects.

4.23 From the start Simon and Binet were concerned that their tests should measure higher mental processes in a way separate from the school attainment tests of the time.[25] This explains why, ever since, IQ-type tests have been a 'technology' alongside school subject examinations, assisting policy decisions about the structure of educational provision. In England this occurred most notably as a supplement to the scholarship examination and interviews administered by local education authorities after their creation in 1902 to determine which children aged 10–14 should proceed to selective secondary schools – the 'county' or 'municipal' schools that the authorities now controlled and many of the old endowed grammar schools that they now grant-aided (Richardson and Wiborg, 2010: 4; Banks 1955: 49–50). Thus, from 1911, authorities such as Liverpool, Bradford and Northumberland approached psychologists about the refinement of mental tests for this purpose, the result being the publication in 1921 of two trial examples mixing verbal, spacial and numerical items.[26] As a result, by 1939 a majority of local education authorities in England (perhaps *c.*70%-75%)[27] were supplementing with mental tests the scholarship exams which they supervised comprising written papers, interviews and orals. Meanwhile, since the late 1920s it had been standard for the results of scholarship exams (the '11+') to be compiled by the authorities as candidate lists entitled the 'Order of Merit'.[28]

4.24 Despite the intention that a clear distinction be preserved between mental tests and those related to attainment in areas of the school curriculum, it was widely apparent that, as psychometric tests continued to be refined (with a central focus on what could be measured reliably and with some claims to validity), the kind of test questions generated resembled those characteristic of certain curriculum subjects, maths and language in particular.[29] Indeed, educational achievement had served from the beginning of IQ testing as an external criterion against which it could be validated. Furthermore, in the 1950s, when secondary school selection in England was at its most widespread, such tests were defended by their designers as a predictive instrument to help make selection fairer, the assertion being that children from all backgrounds would be identified who, because of their innate intelligence, were likely to excel in attainment tests based on the grammar school curriculum.[30] In these circumstances it is hardly surprising that it proved extremely difficult for educationalists to conceive of ability as separate from a hierarchy of secondary school subjects ranked by perceived centrality and/or difficulty.

4.25 At the same time as psychologists were attempting to refine the science of selection, earlier nineteenth-century ideas in England about the relationship of intelligence, ability and merit were also evolving. Although most local authorities had moved to include mental testing within the 11+ examination by the 1930s, many remained uninterested in it and where there was interest, quite varied types of test were in use.[31]

4.26 This patchy engagement and understanding[32] can be related to varied currents in the broader culture. Left-leaning intellectuals had, since early in the century, championed well-designed scholarship examinations which, in the words of Sydney Webb in 1908, promised to provide a 'ladder' via which 'the cleverest children' could be provided with a path to university. This would elevate reason and subvert the power of the idle rich. A by-product would be the benefit of 'extending the sphere of government', a process that could be assisted by an efficient education system working as a great 'capacity-catching machine'.[33] To this mix was added, after 1918, the first generation of public-school socialists whose high-minded ideal of merit was a hybrid of enlightenment and intellect alongside a suspicion of expertise.[34]

4.27 Meanwhile, Conservative thinking up to 1939 saw merit in more aristocratic terms, continuing to identify it most closely with

24. For a balanced survey, see Mackintosh, 1998.

25. Sutherland, 1984: 124.

26. *Ibid*.: 133–40. In 1924 the Board of Education Consultative Committee also endorsed such tests as suitable for classifying children by ability within schools from the age of about seven onwards for the purpose of separate teaching (i.e. streaming), while in 1931, in the context of secondary selection, it commented that the primary purpose of such procedures was to 'test general capacity and ability to profit by continued education' such that it was 'clearly important that attempts should be made to gauge these qualities apart from general attainment in English and arithmetic', Sutherland, 1984: 151–52, 161.

27. See Sutherland, 1984: 189, 299.

28. *Ibid*., 159; Gordon, 1980: 209, 217.

29. In 1936 the Consultative Committee of the Board of Education stated that when it came to selection at the age of 10/11 for entry to secondary education, 'it is generally agreed that no tests of attainment should be set except in English and Arithmetic' (Sutherland: 1984: 161). See also n. 26, above.

30. Mackintosh, 1998: 131, 24.

31. Sutherland, 1984: 254–67.

32. *Ibid*., 283.

33. The concept of an 'educational ladder' designed for those of 'superior ability' had been in use at least since T.H. Huxley deployed the metaphor in 1871, Sutherland: 1984: 107.

34. Wooldridge, 1994: 182–87; McCulloch 1991: 12–14.

'character'. Here the pupil interview rather than the scholarship examination remained the key filter, influenced strongly by Platonic ideals of leadership.[35] It was not a ladder that was required but a 'tree' where separate forms of education could branch from the trunk, with selection acting, in the words of the Conservative MP for the Combined English Universities in 1922, as a 'sieve' to catch 'the really able and most highly developed and educated people'.[36] In this way, and largely eschewing entry examinations, the heads of public schools and the prominent endowed schools[37] could hand-pick their pupils so as to protect society from the risks of over-education, making 'quite sure that not a grain is kept above the sieve that can get through it, and not a grain large enough to remain in the top of the sieve gets lost'.[38]

4.28 Buttressed by these contrasting outlooks – industry and talent according to the Labour view, patronage and regulation and on the part of Conservatives – selective secondary education and the rewards of merit that it symbolised remained unchallenged, culturally and operationally, in England and Wales until after the Second World War. The fact that the schools, and the local authorities that supervised them, undertook selection in very varied ways appeared to matter relatively little.

4.29 However, this did become a problem after the fall of the Atlee government in 1951 when a new breed of Labour politician came to oppose all forms of selection in education and the ills it bred such as the potential horrors of what was now termed a 'meritocratic' society ruled by 'the cleverest people'.[39] But as Labour politics in education swung from promotion of talent toward equality in the mid-century, it met modernising Conservative politics moving in the opposite direction. The codes of honour and gentlemanly conduct that Thomas Arnold had established at Rugby in the 1830s, and which had been widely emulated across selective secondary education for a century afterwards, now seemed out of step with an increasingly scientific post-war world in which women as well as men sought a university education followed by a career. In response, leaders in grammar and public schools began to emphasise 'excellence' in education as the best preparation for leadership.[40] Along with this, the GCE A-level examination, introduced in 1951, placed the spotlight firmly on attainment in individual subjects as the route to the university places that were now more sought after and harder to access.

4.30 Moreover, these changes came as the process of selection, and how it related to the curriculum and to merit, come under renewed scrutiny. Once the impetus for 'secondary education for all' had finally gathered pace in the late 1930s,[41] it was taken for granted in government circles (notably among those from the public schools who dominated at the Board of Education)[42] that universal provision of this kind in state schools would be clearly differentiated among separate, specialist institutions.[43] As such, local authorities after 1944 were advised that the selective grammar and the new selective technical schools should comprise 20%-25% of the age group, but no central guidance was provided about the means of selection. The government committee that had recommended the new structure was also guarded and vague: the selective schools would receive 'entry at 11+ on a rough shake-out according to estimate of type of ability' in such manner as the technical schools gained a 'fair share of able pupils'.[44]

4.31 In practice this meant the local authorities relying on the 11+ examination. Furthermore, it soon became evident that the success of the secondary technical schools was hampered by the conclusions arrived at by psychologists in the 1930s, revisited with intensity during 1947–50. These conclusions were that while the general intelligence suitable for selection to a grammar school was possible though the 11+ Order of Merit, specific technical abilities were not detectable among this age group.[45] Not only this, but government officials were aware, almost from the outset, that the new 'tripartite' arrangements were fragile. In the view of Sir Robert Wood in 1946, now that grammar school fees had been abolished 'class distinction' was no longer a potent line of attack: allocation would henceforth now depend on 'intelligence distinctions or differences – distinctions imposed by Nature and outwith the control of man'. However, Wood could see that this would lead to a new objection, that of creating 'an aristocracy of intellect in the Grammar Schools and putting the "runners up" in the Secondary (Technical) Schools, and "the field" in the Modern Schools'.[46]

4.32 He was correct. By the mid-1950s parents were forming the view that local authority tests resulted in the intake to secondary technical

35. Sutherland, 1984: 276; 1, 11–12.

36. McCulloch, 2007–16–17; Sutherland, 1984: 287–88.

37. By the 1920s, many of these were among the 231 selective secondary schools on the Board of Education's direct-grant list, PSC, 1970: 47–48.

38. Sutherland, 1984:287. Since 1904 the public schools had been supplementing time-honoured recruitment through recommendation and interview with a new sieve, the Common Entrance examination – designed on their own terms and as a co-operative venture, Jones, 2007.

39. Wooldridge, 1994: 320–24; McCulloch 1991: 129.

40. McCulloch, 1991: 78–91.

41. Just as Britain had provided free and universal elementary education later than comparable countries in the second half of the nineteenth-century, so it was slow to expand secondary education in the first half of the twentieth and make it affordable to a burgeoning middle-class: Richardson and Wiborg, 2010; Miles, 2009.

42. Savage, 1983.

43. Two of the key figures, R.A. Butler and Sir Cyril Norwood, were of the view, prophetically as things turned out, that it would be at least another 20 years before 'common schools' could be introduced satisfactorily, McCulloch, 1991: 58.

44. McCulloch, 1991, 58.

45. Sanderson, 1994: 92–95, 145–46. The question of detectable technical aptitudes was discussed at length by Edwards (1960: 48–70) under the heading 'The classification of pupils'. Edwards concluded that the advice of various psychologists to local authorities showed the weight of evidence to be in favour of testing for suitability for grammar or technical schools, but not for distinguishing between them.

46. McCulloch, 1991: 68.

schools comprising just such runners-up. In Wigan, for example, the purpose-built secondary technical school had a national reputation in professional circles but found that 80% of its 1955 intake comprised boys unsuccessful in admission to the local grammar schools. This pattern was to be repeated in each subsequent year due to the 'overwhelming preference' of parents for Wigan grammar school, even though GCE 'O-level' results there were no better and, perhaps, less good.[47] Selection to the Wigan technical school had resulted in the kind of squeeze envisaged by officers in Northamptonshire a decade earlier: a 'second creaming' of pupils to the technical school, with the large majority left over at the modern schools being 'thought of as predestinate hewers of wood and drawers of water'.[48]

4.33 By 1955 this picture was also clear to ministry officials in London. Perhaps, as Northamptonshire had perceived, the design of the three-fold hierarchy of schools, with its uncertain connection to 'ability' and 'intelligence' was a major mistake, not least because of what it seemed to imply about merit. Toby Weaver at the ministry detected a 'three-tier system of Plato's republic that is already hardening – the "fliers", whether humanists or technologists in academic grammar schools, the technicians and managers in second-creaming technical schools, and the "pedestrians" in banausic modern schools with little hope of challenge or standard in their courses'.[49]

4.34 Over the next decade the technical schools lost ground steadily as versions of the Wigan situation were experienced throughout the country. Meanwhile, the 11+ examination continued to shape parental hopes and fears – especially among the middle class – with mental tests derived from models of IQ now being even more widespread among the assessments used than they had been before the war.[50] Inevitably, this led to a common association of intelligence with the grammar school curriculum, described in the last major report to justify its rationale as comprising 'the main departments of knowledge valued primarily for its own sake', in contrast to the modern school curriculum which was 'practical and concrete'.[51] The massive growth since the 1960s of A-level entries in individual subjects, themselves informally ranked in terms of admission to selective university courses and subsequent earnings,[52] has served to reinforce these everyday assumptions about the relationship of intelligence, ability and merit.

4.35 Over the long run, attainment in the 'hard' subjects has thus won out. This can be seen in the major crisis of legitimacy which confronted the public schools in England in the decade from 1965 when earlier uncertainties dating from the 1930s came to a head and the predominant emphasis on 'character' appeared so outmoded as to question the entire enterprise.[53] With the leading universities starting to search more systemically for the most promising students regardless of school type, there was no alternative but to reinvent along meritocratic lines with a clear emphasis on 'excellence', coupled with 'responsibility' (as opposed to 'leadership').[54] The extent to which this has succeeded (and intensified focus on the traditional subjects of the curriculum) has been reflected over the last decade in the sustained effort of governments of both parties to diminish the major hold that schools educating 9% of 17 years-olds in England continue to exert over entry to Britain's leading universities.[55]

4.36 A reinvention of this type was not possible for most of the grammar schools, despite a similar appeal to 'excellence' and a sustained effort to broaden the curriculum by promoting science in the decade from the mid-1950s.[56] But the criticism here was that they were already too meritocratic, failed to motivate sufficiently their minority working class intake[57] and, in the process, undermined the confidence of all those, in their own schools and beyond, who found themselves well down the 'order of merit'. Dismemberment took two forms. Most of those with origins as smaller endowed schools or post-1902 'county' and 'municipal' grammars[58] succumbed to secondary re-organisation after 1965 along comprehensive lines by their host local authority, while the Labour Government of 1974–79 allowed 120 of the direct-grant schools with highest levels of pupil attainment to become fully independent.[59]

Recent policy responses: 'academic' and 'vocational' learning since the mid-1960s

4.37 Only in the historical context set out in the previous sections can the restless curriculum policy responses of the last four decades in England and Wales be properly assessed.

47. McCulloch, 1989: 146–51.
48. McCulloch, 1989: 63.
49. McCulloch 1991: 69. In 1963 the Conservative minister for science, Lord Hailsham, was able to detect in the rise of science and its uses a similar Platonic pattern. Science, he declared, was valuable respectively to an 'aristocracy', a 'bureaucracy' and the 'mass' of people: McCulloch, 1991: 92. Hailsham's outlook was the latest version of a triarchy first outlined in government reports on secondary education by the Taunton Commission in 1868, see McCulloch 2007: 15–16.
50. Sutherland, 1984: 193.
51. Board of Education, 1943: 20–21.
52. Richardson, 2009a: 22 n. 114.
53. Rea, 1981.
54. McCulloch, 1991: 121, 39–40. The Common Entrance examination used by many public schools was based on a range of curriculum subjects, with science being admitted to the core in 1969: Jones, 2007: 18.
55. Richardson, 2009a. During 2002–06, 100 schools accounted for one third of Oxbridge entrants of which 78 were independent schools, *ibid.*, 6.
56. McCulloch, 1991: 79–80, 90–97.
57. Evidence of this was first aired influentially in the government report *Early Leaving*, see CACEE, 1954.
58. Numbers peaked at 1,298 in 1963, DES, 1965: 22.
59. Richardson, 2009a: 10–11.

4.38 The major curriculum task during 1965–80 was to attempt to fuse the two curricular traditions inherited by the comprehensives: the grammar – subject-based, historic and prestigious;[60] and the modern – non-examined, of twentieth-century origin and experiential.[61] Early efforts at accommodation took their cue from parallel curriculum initiatives of the 1960s, for example 'Nuffield Science', trialled from 1962 in the grammars, and 'Schools Council Technology', launched in 1967 and influenced by modern school methods. When these traditions came alongside in the comprehensive schools commentators noted that, very soon, the practical curriculum came to exist as a junior partner and poor relation alongside 'revered academic traditions'.[62]

4.39 In part this was a cultural dynamic fuelled by the historic assumptions about 'ability' and 'merit' reviewed earlier. The most prominent example of the uneasy way in which the respective 'grammar' and 'modern' traditions came to coexist was the widespread use in comprehensives of streaming, banding or subject setting by ability, via test scores or attainment scores.[63] As a result, by the mid-1980s it was being suggested that a second duality within the comprehensives – the struggle to be both meritocratic and egalitarian – was a battle already decisively won, as everywhere 'the grammar school broadened its base in the hope of squeezing out some extra talent' while, on the egalitarian side, 'the modest and piecemeal efforts of the bulk of schools is thrown into relief by intense and radical experiment in the exceptional schools' (Weeks, 1986: 8, 123).

4.40 But as this patterning suggests, there was also an economic dynamic at work. The grammar schools had thrived not least because of the vocational advantages that they afforded their pupils as 'the only sure gateway to a middle-class occupation'.[64] From the mid-1960s to this reality was added structural change in the opportunities open to those with high attainment aged 18, both young men and young women. With the support of employers, the rapid expansion of the universities served to reinforce the hold of higher education over the curriculum in secondary schools via the single-subject GCE examination. And, just as in the period 1560–1640, these were conditions that would lead to an enlarged social group seeing their secondary schooling as preparation for delayed entry into advantageous adult employment after time spent at university.

4.41 The 'grammar'/'modern' fault-line within and between the comprehensives was crucial for what was to follow. By the mid-1970s, the Schools Council work in the broad area of technology began to concentrate increasingly on education with a more 'vocational' (i.e. concrete and immediate) emphasis, explicitly aimed at the lower-attaining pupil. And as the economy deteriorated through the decade, it was inevitable that this curriculum would come to be seen as the handmaid of the large-scale training schemes being provided for the young unemployed. Meanwhile, the Prime Minster of the day, James Callaghan, chose this moment to set out a broad curriculum challenge to all state secondary schools – that they should be both more focussed on the basics while also introducing, for example, 'more technological bias in science teaching that will lead towards practical applications in industry rather than towards academic studies' so as to guard against schools merely 'producing socially well-adjusted members of society who are unemployed because they do not have the skills'.[65]

4.42 The result in England and Wales was a renewed interest in the practical curriculum, as manifested in the increasing availability from the late-1970s of pupil work experience off school premises and the bringing into schools of 'adults other than teachers' (championed by the Schools Council Industry project (SCIP) from 1977). This culminated in the largest single curriculum innovation project seen in this country – the £1.1bn. Technical and Vocational Education Initiative of 1983–98 – and the subsequent formalisation of much of the practice developed in courses of study leading to qualifications such as BTEC awards (from 1984), GNVQs (1992–2007) and 'applied' GCSEs (from 2002).[66]

4.43 Although the vast majority of candidates for such courses in state secondary schools appear to remain those with below average prior attainment, the political imperatives that inspired TVEI served also to ensure that education beyond the traditional subjects of study would be revived in the non-assessed curriculum undertaken by students of all attainment levels in different kinds of schools. This is reflected in the aspects of personal and social education, and the work experience which almost all 14–16 year olds in

60. Stevens, 1972.

61. Taylor, 1963. For a discussion of the failure of the 'modern' tradition to establish a compelling purpose and defining educational identity, see McCulloch, 1998.

62. Richardson and Wiborg, 2010: 10; Goodson, 1983: 23.

63. Weeks, 1986: 83–90. See Ball, 1981, 29–34 for an example in operation during 1973–76 where some, but not all, pupils arrived at their comprehensive with proprietary maths and reading comprehension scores. The recommendation of primary school teachers was also used in this case, the local authority concerned having abandoned IQ testing in 1972, *ibid*., 293 n. 13.

64. Banks, 1955: 202–03. The evidence Banks amassed for the early 1950s led her to conclude that 'the prestige of the grammar school is, in fact, borrowed from the occupations for which it prepares, and while that association continues, both administrators and educators will fail to equate parity of conditions with parity of esteem'. In such conditions, 'the most that can be said of the common school is that it will spread a greater measure of understanding between different strata', *ibid.*, 203, 245.

65. Callaghan, 1976: 335.

66. Richardson and Wiborg, 2010: 10–11.

comprehensives undertake.[67] It is also found in the education provided by academically selective schools: those in the independent sector and the 164 English grammar schools that survived the move to comprehensive reorganisation after 1965 and today secure for their pupils by far the highest attainment in subject-based GCSE examinations of all types of school.[68] Thus, while traditional subject-based courses continue to dominate, these selective schools have participated widely in practical curriculum projects available to all schools.[69]

4.44 In such educational activities there is a mix of economic and cultural imperatives at work. On the economic side, much of the impulse is now encapsulated in the term 'employability' with all of the anxiety that this word conveys: is secondary (and higher) education able to do enough to prepare young people for a fast-changing global economy in which UK living standards are likely to decline for almost all groups as capitalism moves East? On the cultural side, this non-examined curriculum is the continued working out of uncertain attempts to fuse the 'grammar'/'modern' tradition into a new and widely shared moral curriculum.[70]

4.45 This historical review has underscored the key point that all education is vocational and that, over the last 800 years in England, educational institutions have in the most part thrived as a result. Where they have declined most markedly this has been either when they have lost sight of the vocational imperative (the eighteenth century endowed schools) or have been pressured into reform or dismantled when judged as having clung to it too tenaciously or exclusively (the sinecures of eighteenth century Oxford and the grammar schools of the 1960s). Alongside this, a second key strand of the analysis has been the role of politics in the modern era in mediating ideas about merit between, on the one hand, the intellectuals and scientists who have generated them and, on the other, those operating schools and universities.

4.46 Thus, if we say that the 'grammar school curriculum' as expressed in GCSE and CSE subject timetables continues to dominate, both an economic and a broader cultural point is being made.[71] An awareness of both is important in understanding why, as a result, the form of externally-assessed learning that is most highly valued remains strongly analytical rather than applied.

4.47 First there is economic (occupational) reinforcement provided by increasing competition to secure entry to leading universities. Currently this is once more being expressed in terms of the 'hard' and 'soft' subjects that candidates study and is linked to their economic value, in contrast to the official/bureaucratic insistence that many very widely varying kinds of qualification have 'equivalence'.[72] But the language of hard and soft is not only a metaphor for difficulty of access but also for the merit they bestow. This is assumed unquestioningly, for example, by the Sutton Trust in its campaign to create a purer meritocracy in university admissions based on the curriculum terms laid down by the universities which schools then have to follow.[73] The economic and the cultural come together when the science of psychometrics is added to the mix . Most comprehensive schools purchase and use mental test batteries because of the very strong correlation that exists between scores in these tests at ages 9–14 and the subsequent grades attained by pupils in the core examination subjects at GCSE which serve, in turn, as the foundation for subsequent study at a leading university.[74]

4.48 Cutting the other way, a countervailing force has been the tone set by the SCIP in the 1970s, taken up more widely by the TVEI in the 1980s and reflected in the voluminous literature on practical and 'vocational' curricula that has followed, which assumes almost without exception that such education is primarily an activity required to enhance motivation of learners of average or below average potential in the all-ability school. As a result, only very occasionally have young people with high mental test scores or prior attainment been singled out in studies of practical learning.[75] Compounding this, most of the voluminous literature on the work-related curriculum generated up to the mid-1990s was ill-designed to overcome these stereotypes. Much of it was 'focused on implementation rather than impact',[76] a situation that has not altered subsequently. Such case study material as exists, for example of curriculum interventions in grammar schools with a practical focus, take the form of non-evaluative short descriptions.[77] Meanwhile, there is very little quality research of how individual guidance in schools

67. Saunders et al., 1996.

68. DCSF, 2008a, Table 3; DCSF, 2007a, Table 5a.

69. These include field trips, enterprise projects (for example, the Young Enterprise UK Company Competition launched in 1981) and programmes run by Business in the Community and Neighbourhood Engineers, as well as practical expressions of the informal curriculum such as the Duke of Edinburgh Award Scheme, various forms of community service and the creation of student membership of school representative councils.

70. 'When the new comprehensives failed in their mission to create an equal society, the result tended to be social inequalities without the public spirit or mission that had once helped to mitigate some of their worst effects', McCulloch, 1991: 78 (and see also: 96, 124 and 126).

71. Almost all will attempt one or more GCSEs, even if very few will take such courses solely when aged 14–16, Wolf, 2011: 20.

72. BBC, 2011. The UCAS tariff tabulates 'equivalence' but PricewaterhouseCoopers (2005) calculates the real political economy of subjects. The Wolf Report is very critical of bureaucratic 'equivalence', Wolf, 2011: 84, 86–87, 90, 111–12, 142.

73. For example, Sutton Trust 2008.

74. See above, paragraphs 3.60–65.

75. See Pearson, 1985, for a rare example.

76. Saunders *et al*., 1996.

77. Such as: BCCG, 2002; CITL, 2005; and Bexley EBP, 2008.

operates among students aged 13–14, a crucial sphere now that a broadly common 14–16 curriculum is increasingly being abandoned in favour of pupil differentiation.[78]

4.49 In recent years two further developments have brought longstanding aspects of the story up to date. In 2002 the New Labour government created a National Academy for Gifted and Talented Youth (NAGTY) in England. The context in which it worked was characterised from the outset by a vagueness as to the nature of such gifts and talents, not dissimilar to that of the 1850s and 1860s or the 1940s. When an official commission next looked into the matter (in 1970, when a Labour government was setting about abolishing the direct-grant grammar schools), such definitions had presented the commissioners with 'some of the most important, urgent and difficult problems' they faced. As a century before, such pupils were described as at the top of 'the ability range' (echoes of Frederick Temple). They had 'special talents' and were 'academically able' (Macaulay), being the 'brightest' of their peers. Summing up these problematic categories, the commissioners concluded, somewhat uncertainly: 'What we were looking for were children capable of achieving great things after they leave school'.[79] Three decades later, in 1999, a Commons Select Committee investigated a subsequent Labour government's new-found enthusiasm for this area. Having taken evidence from 99 expert individuals and groups it, too, concluded that 'the identification of the target group proved the most complex aspect of our enquiry… Indeed it would be fair to say that a definitive answer to the question "Who are the highly able" has not emerged'.[80] So much might have been expected, given the highly contested terrain that exists on this point, both within psychology and between psychologists and educators. More relevant to this study, when the research programme of the NAGTY was established in 2002 and systematic reviews were undertaken, an absence of studies on practical and applied education in its area of interest became evident,[81] underscoring the broad assumption that such learning and curricula have little relevance for the most 'able'.[82]

4.50 The second recent development is related to the first and also points to unresolved questions of long standing. Since 1998 schools in England have been permitted to select up to 10% of pupils by 'aptitude'.[83] In introducing this measure – to bolster the political momentum behind the Blair government's specialist schools programme – an idea was being dusted off the shelf that went back to the 1920s when the Hadow report commended differentiated types of post-primary school on the basis that 'the deciding factor is whether the aptitude of a group of pupils will enable them to profit most by this course or that'.[84] This appeal to 'aptitude' remained a constant in Board of Education policy through to the implementation of the tripartite secondary system after 1944 and was, as we have seen, a live issue for those secondary technical schools labouring through the 1950s to establish credible selection procedures.

4.51 The 1998 policy appears to have been innocent of this unpromising history. Pupil selection to specialist schools was to be permitted by aptitude if, in turn, the school's specialism was, itself, deemed to be an 'aptitude'.[85] Few have taken up this option as its social implications remain highly emotive in most state secondary schools. Meanwhile, as in the 1940s, the psychology community is no nearer agreement on the difference between aptitude and ability.[86] For this and other reasons the recent annual reports of the government's admissions regulator (the Schools Adjudicator) have floundered in this area,[87] not helped by the Commons Select Committee that investigated it in 2003 dismissing selection by 'aptitude' as a fundamentally flawed concept.[88]

English particularity?

4.52 Finally, there is the question of the extent to which English experience and understanding of merit and ability in school-level education is particular.

4.53 England was not alone in Europe after 1945 in having to decide whether to retain over the long term a system of selective secondary schools brought about by the continuance of ancient grammar schools alongside extended education for the majority built on elementary school traditions. As we have seen, from the mid-1960s in England (and Wales) there was a rapid search to accommodate within the new comprehensives curriculum models formerly promoted separately in the grammar and modern schools, for shorthand the 'academic' and the 'vocational' but, more accurately,

78. A differentiation much criticised in the 2011 Wolf report, see above, n. 72.

79. PSC, 1970: 52, 155, 172–78.

80. HoC, 199: paragraph 7.

81. Information provided by Professor Wendy Robinson.

82. Although the Select Committee concluded that there were situations, such as engineering, where the 'highly able' could benefit from 'work-related learning', HoC, 1999: paragraph 176.

83. Bolton, 2009: 7.

84. BoE, 1926: 78. The Board's Consultative Committee had begun to take an interest in psychological tests – this 'new and most complex subject' – from 1919, Sutherland, 1984: 149–50, 154.

85. Such designations also deemed an 'aptitude' are: physical education/sport; the performing arts; the visual arts; modern foreign languages; design and technology; and information technology.

86. Although there are proprietary tests on the market, such as the Sherwood Technology Aptitude Test.

87. For example, his 2010 report commented that 'objections to aptitude testing have been forthcoming again this year, with some schools still employing tests which seem to be more related to ability testing (which is not generally allowed by the Code) than to aptitude', OSA, 2010: 7. On publishing the report the Schools Adjudicator told the press, somewhat haplessly, that 'It is very difficult to define the difference, even if you're looking it up in a dictionary', BBC, 2010.

88. HoC, 2003: 36–38. West and Ingram (2001: 7) comment that 'it does not appear feasible to differentiate between "ability" and "aptitude"', before going on to review how the difference has been interpreted in non-statutory guidance to the schools adjudicator.

those tending to abstract analysis as opposed to concreteness and immediacy.

4.54 The resulting fault-line ('academic'/'vocational', 'meritocratic'/'egalitarian', 'hard'/'soft') continues to generate much heat, indicating a broad unease with the way in which distinctive groups of students have encountered largely separate secondary curricula after the age of 13/14 in comprehensive schools since the early 1970s. And it is an unease that has proved no easier to resolve in the knowledge that, since the era of international mass upper-secondary education was inaugurated in 1950s, national school systems in high-wage economies comparable to Britain, even those which are fully 'comprehensive', have also provided a range of curricula which allocate to their recipients varied career prospects and relative earnings.[89]

4.55 To what extent has accommodation across this fault-line been especially incomplete in English culture? As recounted earlier, the genie of mental testing was let out of its bottle in the England of the 1870s playing, at the time, to the emerging interest of intellectuals in the anatomical measurement and classification of the 'races' of the empire in relation to the mother country.[90] Meanwhile, English ideals of 'merit', associated since the 1860s in an uncertain way with 'ability' and in an even vaguer way with 'aptitude', but always linked also to 'character',[91] came together in the 1930s in the widespread but piecemeal use of mental tests derived from IQ to help organise the selection of 10 year-olds for differentiated secondary schools.

4.56 Psychology had developed in parallel in other countries. Indeed, IQ was first formulated in Germany and was being very widely applied in the USA before 1920. Yet in neither country, nor hardly in Wales, was it used to select children for types of secondary school. In the USA, where common schools were deeply ingrained alongside ideals of aspiration, mental testing served to match educational programmes to distinctive groups of children *within* all-ability institutions.[92] In Wales, where a higher proportion of children than in England entered secondary education before the war, where more of those who did were exempt from fees and where comprehensive schools were universally adopted after 1965, it appears that only two of the sixteen local authorities had used intelligence tests in their heyday.[93] Perhaps most interesting for comparison, a tripartite structure of secondary schools similar to that in England during 1945–60, developed in Germany from the early 1960s and remains largely in place as the most conservative school-structure in Europe.[94] Here, intelligence testing was never used in pupil selection. Instead, since the mid-1930s parents have had the right to choose their child's school, based on detailed guidance provided by teachers. In earlier decades such guidance was accompanied by curriculum-based assessments undertaken immediately prior to the point of school transfer at the age of 10; since the early 1980s, pupils have followed a common two-year 'orientation stage' at 10+, either in one of the three kinds of secondary school or, less commonly, at a middle school.[95]

4.57 The institutional structure of English state secondary schooling in its formative period from 1900 to 1960 reflected a preference for the Germanic model of stratified secondary education. However, this was accompanied by a cultural bias (in the south of England especially) against a crucial element of the German system – the esteem in which technical education had been held and maintained there since the 1890s, with its underpinning, cross-class/income values of *beruf* (occupational calling/vocation) and *bildung* (personal/moral/spiritual formation through education). In Germany it is this tradition which has validated the secondary technical strand and served to reduce the high stakes pressures that built up in England in mid-century concerning access to the grammar strand.[96] In England the legacy of the earlier structure in an era of comprehensive education is middle-class dissatisfaction and anxiety in which the old pressure point of access to grammar school education at 11+ has been replaced by that concerning access to a good university at 18+.[97] In both cases, it is high attainment in traditional subjects (with its links to ideas of ability and merit) that has offered the passport. Through this process the dominance of the universities over the core of the secondary school curriculum – a strongly English dynamic – remains as central now as throughout the period since the late sixteenth century.

4.58 Finally, the unevenness with which intelligence testing supported selection to state secondary schools in England from

89. Richardson and Wiborg, 2010.

90. Goodman *et al*., 2009.

91. Gordon, 1980: 206.

92. See, for example, de Haan, 1962.

93. Sutherland, 1986: 267. Unlike England, Wales went fully comprehensive after 1965 with the final grammar school closing in 1988, Bolton, 2009: 3. Comparison with Scotland is also interesting. Drawing on the same Scottish Enlightenment tradition as had Macaulay in the early nineteenth century, psychometricians in the 1930s began conducting mental testing surveys of the entire pupil cohort (Sutherland, 1984: 142), a procedure later widely used to assist selection at 12+ for 'senior' secondary schools in the post-war period. As in England, comprehensives were introduced in Scotland from 1965 but with less controversy and much wider acceptance, drawing culturally on a separate native tradition with deep roots – the post-Reformation all-age parish school with links to the universities: Anderson, 1999: 222; Green, 2009: 269–70.

94. Phillips, 1995: 4.

95. Koelle, 1962, 260–70; Phillips, 4–5, 67–69; Richardson and Wiborg, 2010: 16–18.

96. However, the equivalent to the English secondary modern schools in Germany (the *Hauptschulen*) are now in major difficulties, while at no time since the 1890s had the technical strand in England had the cross-class and employer support lent to the *Realschulen* in Germany: Richardson and Wiborg, 2010: 30–34.

97. Gary McCulloch suggests that this has been accompanied by 'a moral vacuum, a "culture of individualism". Structural inequalities remained as divisive and alienating as ever in the comprehensive schools, but lost their Platonic rationale and social agenda', 1991: 96. By the 2000s, Sally Tomlinson was arguing that middle-class families were seeking 'to move away from meritocratic and egalitarian beliefs and exclude the disadvantaged and

troublesome from interfering with their children's education': 2005: 73.

98. Wooldridge, 1984: 415–17; Sutherland: 1984: 284–85. Moreover, attitudes were not fixed. Before the war, there were rival views within the professional ranks of the local authorities as to the value of mental measurement and testing, often relating to the class background of officials of different generations, see Sutherland, 1984: 277–79.

99. Richardson and Wiborg, 2010: 4–13.

100. *Ibid*., 30–34

101. Seven out of the 194 English local authorities with secondary schools have a fully selective system, while a further 29 have partial selection across their schools: Bolton, 2009: 3–4.

102. Wooldridge, 1994: 417. For a brief discussion of middle-class anxiety in English education in the nineteenth and twentieth centuries, see McCulloch, 2007: 13–17.

103. Wooldridge, 1994: 414, 416.

104. All such tests were abolished in Wales in 2004 and those taken at 14 were abolished in England in 2008.

105. Gillborn and Youdell, 2001: 67. Since 2006, the government in England has published a 'contextual value added' (CVA) score for all maintained secondary schools, derived from information about student progress and attainment in the first five years of attendance, weighted for socio-economic factors in the make-up of the school's cohort.

106. Deary and Smith, 2004: 23–24. CAT3 refinements have also attempted to minimise 'middle-class bias' in test items.

the 1930s to the 1960s points to how specific ideas about ability turn out to be, culturally, geographically and temporally. The patchy uptake of psychometrics in English local authorities reflected ambivalence towards the social sciences and was based on varied understandings of the national (and imperial) society worked out in intellectual and political life in the century from the 1850s. It also points to the extent to which different groups saw mental testing as a vehicle for patronage. Intelligence tests were hardly noticed by the ancient universities and the public schools whose networks and understanding of merit were already well established. However, in the localities the new technology gave to councillors and alderman from local businesses and professions, as well as to head teachers, scope to exercise influence, patronage and power. Thus, while educationists 'might propose the equation of ability with merit, of talent with virtue', such notions 'had social and cultural as well as more narrowly intellectual dimensions'.[98]

4.59 Among these cultural dimensions in England was a long tradition of employer antipathy to specialist technical schools, linked to a preference for working alongside the mainstream to support pupil attainment, particularly where this could be tied to dispositions such as 'work-readiness' and, in stark contrast to Germany, involve employers in minimal costs.[99] The *laissez-faire* political economy that had made Britain the first industrial nation had also made it one of the first to dismantle guild control over apprenticeships and one of the last to legislate for universal attendance at elementary school.[100] Ninety years later, when the move to end secondary selection in England came, it was bitterly contested and not fully implemented.[101] The battle took place largely within the middle-class, pitting reforming zeal against wistful anxiety, with the science of selection by ability placed uncertainly in the middle ground.[102] And not inconsequentially, as the middle-class continued to expand, it became clear to many parents that, in any event, their children did not have a guaranteed grammar school place. So it was that 'when selection commanded widespread support, it was commended as an instrument of justice; when selection became controversial, it was denounced as a pseudo-scientific sham'. Henceforward attention shifted to differentiation of pupils within the comprehensive school and, latterly, between such schools.[103]

The contemporary scene

Measures of academic ability currently used among the 11–16 age group

4.60 In 2009, 95% of pupil places in English state-maintained secondary schools were in all-ability institutions, as were 100% in Wales. Nevertheless, in both countries mental testing is probably as prevalent now among 10–12 year-olds as it was during the 1950s supremacy of the '11+', if not more so. This is mainly thanks to the huge increase in accountability that these schools have experienced since the early 1990s, framed within a National Curriculum. Thus, during 1991–2004 results were published nationally for maintained schools of Standard Assessment Tests (SATs) taken at age 7, 11 and 14 linked to the National Curriculum,[104] to be accompanied (in England) by published tables of GCSE results per school (from 1992) and 'value added' measures (from 2002).[105]

4.61 The largest-selling proprietary test in the UK is the NFER-Nelson Cognitive Abilities Test (CAT)3. This is a test battery refined from a design first constructed in the 1950s and is sat each year by a majority of UK pupils within the relevant age group (9–14): 800,000 copies were sold in the UK in 2000 alone. The success of the CAT3 hinges on its use in setting a baseline for measuring the 'value added' to the entire intake by secondary schools and its very high predictive value for individual pupils' subsequent GCSE grades (an overall correlation of 0.7). Here, once again, we see the tight nexus between 'ability' and attainment in traditional analytical subjects that has proved so powerful over the last 150 years, notwithstanding the most recent refinements to CAT designed to reduce the extent to which prior learning is assessed. Yet the tests measure responses to verbal, quantitative and non-quantitative questions, and these are necessarily related to basic reading, general knowledge and simple arithmetic.[106]

4.62 Meanwhile, the remaining selective grammar schools in England rely on the 11+ examination (now officially 'transfer procedures') as a test of ability when selecting students at that age (some also selecting on a small scale at 12+ and 13+). Typically, this continues to comprise cognitive ability reasoning (with a marked shift since the early

1990s from verbal to non-verbal reasoning on grounds of increased fairness in relation to candidates from different backgrounds[107]), alongside tests in English and maths. Finally, as already outlined (paragraphs 4.50–51), procedures used since 1998 – and still in use today – to select pupils for specialist schools by 'aptitude' are largely discredited.

4.63 In the sample of six schools that participated in our study the CAT3 test was in use as were two of the prominent Durham University tests, Yellis and MidYIS.[108] At the two grammar schools 'transfer procedures' (i.e. the local authority approved 11+ reasoning tests) were the means of determining admissions.

4.64 In the initial secondary school years data derived from the tests and examinations reviewed above, supplemented in England by National Curriculum tests sat in primary schools in Year 6, may also assist with pupil differentiation. For example, during the 11–14 phase almost all students in England and Wales outside the special school sector follow a subject-based curriculum in anticipation of the programmes of learning dominated by the GCSE subject courses that the majority of 14–16 year olds will follow. Where differentiation of students exists, it is through setting/banding/streaming in relation to subject learning[109] and/or through the identification of students who are 'gifted and talented'.[110] In the former case prior attainment and/or outcomes of cognitive or other tests are the usual means by which pupils are grouped.[111] In the latter case, guidance on the identification of gifted and talented pupils has been generally vague in recent years, with selection left to individual schools.[112]

4.65 A final development of note is the increasing use by schools in recent decades of commercial products which claim to identify quite different abilities than those deriving from reasoning-based intelligence tests. These alternatives have found a ready uptake among educators who view the nexus between tests such as CAT3 and subsequent GCSE/GCE grade attainment as too narrow a base from which to plan adult preparation in the twenty-first century, as well as being largely irrelevant to a substantial minority of pupils. Thus, the more prominent models of broader 'intelligence' that have recently been advanced, such as Gardner's eight 'multiple intelligences' and Sternberg's three-fold ('triarchic') division[113] have found a ready audience in schools. The attractiveness to teachers of trying to stimulate several forms of intelligence in pupils lies in a belief that this offers a sounder basis for the design of a rounded school education, while also seeming to promise ways of recognising formal achievement more 'inclusively' and, perhaps, lend new respectability to practical and applied learning. Influential in this have been commercial products which seek to identify the range of 'learning styles' to be found in any group of school pupils or professional staff, for example Kolb's Learning Style Inventory and Honey & Mumford's Learning Styles Questionnaire.[114] These theories of intelligences and learning styles remain controversial and contested among psychologists and are the heirs of the 'aptitudes', 'gifts' and 'talents' advanced uncertainly by psychologists and educators since the 1920s. Nevertheless, they have been widely tried out in schools as guides to lesson planning and broader curriculum design, and as a means by which to understand student learning and support it better. Pupils in the two grammar schools in our study reported having sat learning styles tests.

Recent research on the curriculum experiences of students and the subject/course choices they make

4.66 Over the last decade systematic reviews have appeared which synthesise and summarise UK research into the impact of careers guidance during key stages 3 and 4 of the National Curriculum,[115] students' curriculum choices at Key Stage 3,[116] choice at the end of Key Stage 4[117] and the overall experience students have of their schooling.[118] Each of these reviews has relevance for aspects of our study but, taken together, they indicate virtually no research to date in which these dynamics have been examined in relation to students' perceived abilities. Indeed, where there has been a focus on a particular student group this has been strongly directed toward those who, for a variety of reasons, might drop out of full-time learning post-16. Neither do the systematic reviews show any evidence of research examining specifically the influence of student attitude toward practical and applied learning. Where there has been a focus on specific aspects of the curriculum, this had been directed toward the main National Curriculum subjects.

4.67 At Key Stage 3, research by Stables and Wikeley (1999), Reiss (2001) and Lord (2002)

107. *Ibid*., 22.

108. The Yellis and MidYIS batteries are described by the university as 'part of a family of information systems'. The MidYIS baseline tests are not IQ tests but 'designed to measure, as far as possible, ability and aptitude for learning rather than achievement… so that teachers can judge how much 'effort' will be required' for pupils to achieve specific GCSE grades.

109. Kutnick *et al.,* 2005.

110. Hewston *et al*., 2005; DCSF, 2008b.

111. Kutnick *et al.,* 2005: 51. This literature review found that 'allocating pupils to organisational groups such as sets is most likely to be informed by internal school tests or Key Stage tests with fewer schools using CAT scores or information from feeder primary schools', *ibid.*, 26.

112. Robinson and Campbell, 2010.

113. For a survey see Ceci, 1996: 193–219.

114. Coffield *et al*., 2004.

115. Bowes et al., 2005.

116. McCrone *et al*., 2005.

117. Payne, 2003.

118. Lord and Jones, 2003.

has reported that students' beliefs about their ability were related to their experience and enjoyment of a subject and how confident they felt about it. For example, high drop-out rates in modern foreign languages were linked to perceptions of the particular difficulty of this area of study which, in turn, influenced students' sense of their own ability to succeed.[119] Linked to this, the study by Harland *et al*. (2002) found that a majority of pupils at Key Stage 3 (in Northern Ireland) considered examinations to be 'the most effective means of identifying their progress and attainment'.[120]

4.68 In reviewing the literature on choices made by students in Key Stage 4, Joan Payne has reported that 'the results that young people expect to get in public examinations taken at the age of 16 play a very large part in their choice of route at age 16'.[121] This finding is derived from very large, nationally-representative samples over two decades or more across Britain and this has been important in determining policies designed to stimulate full-time participation post-16, as well as in identifying overall attitudes among students toward their schooling. However, this research is largely based on statistical modelling and tells us relatively little about the detailed dynamic of enjoyment linked to preference, confidence and perception of abilities in particular areas of the curriculum.

4.69 Elsewhere, the research on student perceptions of ability and achievement indicates that they identify a number of attributes related to 'doing well', including 'effort, ability, appropriate use of strategy, interest, the contribution of the teacher and the nature of the task', and that what counts in their eyes as achievement is influenced by test results (such as the 11+) which 'signified a labelling of *each other* as '*a, b or c*'.[122] Once again, this research does not tend to differentiate between the traditional subjects and areas of practical and applied learning that are the focus of our empirical study. Neither does it explore in any detail how these processes are operationalised by teachers in schools.[123]

4.70 In general, much of the research on students' curriculum experiences and choices can be seen as influenced by the very considerable effort that has been expended across British education since the mid-1980s to push on from a school-leaving age of 16 to a 'learning' leaving age of 18, with all of the attendant difficulties involved in motivating the entire cohort to remain connected to a school or college environment for a further two years. Moreover, this effort has been expended at a time when there has been an intensification of 'credentialism', partly due to evidence that young people are motivated by the attainment that they feel is within their reach – an insight strongly influenced by Joan Payne's earlier research which concluded that there was no more important variable explaining the late 1980s surge in post-16 'staying-on' in England and Wales than the move from norm-referenced 'O' levels/CSEs to criterion-referenced GCSEs, first examined in 1988.[124]

4.71 The inexorable growth in testing and assessment of all kinds that has followed – linked to policies emphasising school accountability – has been a key driver of the curriculum but has left relatively undisturbed hierarchies of achievement in which those curriculum areas that derive their prestige from nineteenth century conceptions of 'merit' and 'ability' and mid-twentieth century conceptions of 'excellence' still hold sway. And when it comes to how merit, ability and excellence are currently understood day-to-day in schools and in families, the universities (with their associated hierarchies) continue to exert the main influence, with the broad support of employers.

4.72 Within this environment there is much confused thinking in England about the relationship between school achievement and social mobility. This mobility remains largely *sponsored* on the basis of an informal 'order of merit' in achievement (a strong cultural form, reflected in the debate on 'hard and soft' subjects derived from wider ideas about ability merit promoted in the 1850s and 1860s by Macaulay and Temple, and in our own day by the Sutton Trust). This continuity holds despite the huge effort deployed since the late 1980s on mobility that might be *earned* on the basis of equivalence of achievement (a weak technocratic form, reflected in contemporary bureaucratic devices such as the Qualifications and Credit Framework and the UCAS tariff). The shallowness of this concept of 'equivalence' and a rebalancing in the direction of subjects with greater merit (English and maths) is a central strand of the most recent government enquiry, the 2011 Wolf review of 'vocational' education in England.[125]

119. See McCrone *et al.*, 2005: 37–38.

120. See also Lord and Jones, 2003: 53.

121. Payne, 2003: 27.

122. Lord and Jones 2003: 52–53.

123. For example, in response to external policy change such as the introduction of the Increased Flexibility Programme in 2002, see Golden *et al*., 2005.

124. Payne *et al.,* 1996.

125. Because of 'courses which are pseudo-academic and pseudo-vocational at one and the same time', students are recruited to programmes that 'do not appear to have any positive outcomes whatsoever in terms of earnings and career progression' Wolf, 2011: 111, 71.

Chapter 5
Discussion and implications

5.1 In this section we bring together the two main bodies of evidence generated in the course of our research:

- the empirical fieldwork data generated by a sample of 170 young people aged 12–16 in England and Wales in 2010 talking about their learning, its relationship to enjoyment and motivation, and its influence over their future plans; and
- the contextual narrative of how 'academic' and 'vocational' school-age learning has developed since the medieval period in England and Wales, influenced since the sixteenth century by the concerns and pre-occupations of the universities and, since the nineteenth century, by the ideas of intellectuals and policy-makers about merit, ability and reward in society and how to reflect them in schooling.

In doing so, we have carried out the first study to look at these questions specifically through the eyes of 'academically-able' young people and with a specific emphasis on practical and 'vocational' learning informed by the 'long view' of history.

Summary of results from the fieldwork and their relation to previous studies

5.2 The detailed results from the empirical fieldwork are now summarised under the three main headings reported earlier. For each we have also provided a commentary on the extent to which these results replicate those of previous studies or are distinctive.

5.3 However, before moving to these summaries and our commentary on each, it is worth emphasising again that the outlooks which these academically-able students shared across our sample were much more frequent than the small number of specific perspectives of those in a particular type of school (11–16, 11–18, selective, non-selective, rural, urban, Welsh, English) or type of Key Stage 4 programme of study ('GCSE-only' or 'vocationally-orientated'). Unless specified, no significant variation among these groups of respondents was found. However, there was a small number of instances where the distinctive culture of each school appeared significant in relation to student outlook on a particular question and these are mentioned in the summary which follows.

5.4 *Enjoyment of school and motivation in different types of learning*

In our study:

- most of the academically-able teenagers in our sample were highly positive about and motivated by their learning at school;
- high ability students in both Key Stage 3 and Key Stage 4 valued strongly physical, expressive and experiment-based learning and placed these well above more analytical forms of learning (especially 'writing') for enjoyment; many drew a link between physicality and exploration in the learning they enjoyed;
- a very large majority of these students preferred types of learning that were strongly influenced by perceptions of where their abilities lay, reinforced by high prior attainment in these same areas;
- a very large majority considered that learning with practical elements was more, or just as important as mandatory subjects such as English and maths. When asked to explain this, the most frequent responses were:
  - practical learning is just as relevant to adult life as 'core subject' learning;
  - there needs to be a balance and mix of activities within the school week;
  - knowledge and understanding within the curriculum is enhanced by a mix of learning types;
  - the range of learning along a continuum from the practical to the theoretical allows different people to thrive;
  - practical/expressive activities are an important aid to physical fitness, health, relaxation and well-being;
- overall, older girls were more positive about their learning, regretted more areas they found difficult and were more risk averse in their choices;

- there was no discernible influence over these headline findings of either the type of school attended (e.g. selective/ non selective entry, higher/lower overall attainment, Welsh/English) or the type of options chosen at Key Stage 4 ('academic' as opposed to 'vocational').

5.5 *Commentary (in relation to previous studies)* It is striking that our findings on the well-spring of student enjoyment at school are consistent with those reported in systematic reviews of similar UK research, none of which have focussed specifically on students of higher 'ability'/attainment. Both these recent reviews and individual studies dating back to the early 1970s show that the enthusiasm of students across the age cohort is closely related to their sense of certain kinds of study being fun, reinforced differently for each student by the balance of a range of other factors: beliefs about their own ability, ease of subject-matter, usefulness and career relevance.[1] Moreover, when it comes to levels of enjoyment, our students appear just as motivated as those in the age group as a whole. In other, larger-scale studies at key stages 3 and 4, as in ours, around two thirds profess broad enjoyment or better.[2] Our data also do not depart from those reported by Lord and Jones, namely that Year 9 students are motivated by 'national assessment and making choices', while provision at Key Stage 4 tends to display 'improvements in pupils' enjoyment, particularly of optional subjects'.[3]

5.6 Our results relating to students' motivation in relation to practical, physical and exploratory kinds of learning are also found in the wider literature where it is strongly linked to one of the signature themes of our study, the kind of learning that is 'fun'.[4] Students in our sample have learning preferences and a desire for a balance between analytical and practical work similar to that found in other studies using more 'mixed-ability' samples.[5] This similarity is also reflected in the ways that students categorise subjects in the curriculum. As with our research, a study involving 931 students in Years 7 and 11 reported that pupils (including those at a selective school) favoured practical subjects such as PE, art and technology, above almost all others. Moreover, these preferences appear to have strengthened in snapshot studies undertaken over the decade to the early 2000s, especially among younger students.[6]

5.7 There was less similarity with the results of previous studies when it comes to perceptions of 'vocational' courses, but this appears to arise from confusion over terminology. In our study, almost half of the sample at Key Stage 4 had opted for at least some learning which we believe merits the description 'vocational', in the sense of studies with an occupational orientation (BTEC, Diploma, etc.).[7] Other studies discuss courses with this same 'vocational' label (for example, the Increased Flexibility Programme) but these are depicted as suitable for learners disaffected with the National Curriculum, due either to an attitudinal stance or a perception of low ability. In such instances 'schools guided the "less academic" down vocational pathways, or saw such courses as a way of "re-engaging disaffected students"'.[8]

5.8 In the context of all of the foregoing, the validity of our study appears strengthened by the resonance it has with other studies. At the same time, it breaks new ground through its focus on high 'ability'/attaining students who have mainly been stereotyped in the past as 'academic' rather than merely high-attaining. A large majority of these students place a strong value on practical learning (as well as enjoying it), emphasising especially its relevance to adult life and the balance which it brings to the school week. At the same time few (even in the very high attaining grammar schools) chose traditional analytical subjects as their preferred types of learning.[9] Finally, in contrast to some cohort-wide, 'mixed-ability' studies,[10] the girls in our study appeared just as keen as boys on active learning, while boys enjoyed school just as much as girls.

5.9 The results summarised so far ran across our entire sample. When it came to instances where the influence of the culture of individual schools may have played a part, the strong emphasis in School B (the lowest-attaining of the schools) on all students being able to access a range of learning styles across all subjects appeared to explain why, among the six schools, its students valued learning based on experimentation more highly than physical and expressive learning. Meanwhile, at School D (a selective grammar) the compulsory study of technology-based subjects at Key Stage 4 appeared to explain the high value that its students placed on learning that tackled 'real world' or 'everyday life' problems and situations.

1. McCrone, 2005: 33–34, 37–38; Blenkinsop et al., 2006: 52, 125, 127; Payne, 2003: 27–28; Lord and Jones, 2006: 28; Adey and Biddulph, 2001: 441–42.
2. Payne, 2003: 22.
3. Lord and Jones, 2006: 5.
4. See, Lord and Jones, 2006: 7–8, 33–34, 45, 60.
5. *Ibid*., 60.
6. Colley and Comber, 2003.
7. An exception was School C, which offered only GCSEs at Key Stage 4. Here, we identified as 'vocationally orientated' students, those who had chosen subjects with the most coursework components (60%-100%: e.g. IT, Art, Design & Technology): see paragraph 2.12, above.
8. Blenkinsop *et al.*, 2006: 5, 17. In the mid-1990s Alison Wolf (1997: 55) considered that rather than being 'vocational', the GNVQs of those days were better understood as programmes defined by the demands of their assessment criteria than as having an occupational focus. From this she suggested that this explained the bunching of 'middle-ability' students on such courses. In our sample there were a few 'middle-ability' participants at our two 11–16 schools in England where average GCSE attainment was at or just below the national average: see paragraph 2.26, above.
9. See paragraphs 3.14 and 3.28, above. As in other studies with a more 'mixed-ability' sample, writing was the least favoured activity among our students.
10. Payne, 2003: 38.

5.10 *Considerations and challenges when making 'options choices' within the curriculum* (in anticipation of more tailored learning in Key Stage 4 and Key Stage 5, respectively).
In our study:

- most of our 'academically-able' students planned to choose traditional subject courses in the year ahead but, as more choice opened up post-16, more 'applied'/'vocational' options were being chosen, regardless of respondents' school-type;
- also, by choosing either solely additional GCSEs in traditional subjects, or mostly GCSEs leavened with an 'applied subject', a large majority of the younger age group were probably looking to find a balance between their enjoyment of practical learning and a consolidation of their specific abilities in the light of attainment to date;
- however, patterns of existing and projected attainment (reinforced by the ability measurement tools in use in the schools) were probably pushing many or most of our students away from practical learning after completion of Key Stage 4;
- by far the most influential factor over course choices at Key Stage 3 across all schools was the 'type of learning' that is most enjoyable. (e.g. 'practical subjects' compared to 'ideas subjects');
- at Key Stage 4 two influences were equally strong and were dominant, regardless of school-type or programme ('academic' or 'applied'/'vocational') currently being followed: kinds of learning that are enjoyable and those that relate to a student's future plans;
- choosing courses was seen as difficult by both age groups, although the challenge appeared slightly easier for those in grammar schools at Key Stage 3 and slightly easier for boys and girls equally and across all schools at Key Stage 4;
- the most common explanations provided both at Key Stage 3 and Key Stage 4 as to why choice was difficult was the pressure to consider carefully how subjects/courses chosen now would affect the student's future and the problem of making choices in the absence of any clear plans;
- the more specific considerations that weighed with students when making choices were complex.
  - Students reported very strongly that they had the self-confidence to make their own choices, influenced by the kind of learning they enjoyed.
  - Teacher support was seen as relatively weak at Key Stage 3, while parental approval was of low and decreasing importance and, by a large margin, choosing the options being followed by close friends was the least important of all considerations.
  - Older students reported being more inclined to choose options based on clearer post-school plans and in a way less influenced by the advice of particular teachers.
  - At Key Stage 3:
    - boys were more concerned to choose options likely to strengthen subsequent exam success, a gender-based result that was strongly reversed among Key Stage 4 respondents;
    - more girls than boys had decided that they wanted to attend college or university at age 18 and were considerably more likely to have job plans in mind.
  - At Key Stage 4:
    - girls were now even more determined to go to college or university at 18 but were no longer at all as sure about their occupational plans;
    - those following programmes comprising solely traditional GCSE subjects (as opposed to 'applied'/'vocational' elements) were more influenced in their choices by the kind of learning they considered would be easiest/most enjoyable at the next stage.

5.11 *Commentary (in relation to previous studies)*
In the small number of instances where the findings of previous research into students' subject choice discuss this by student ability, it is suggested that 'higher achievers possess better self-awareness … have a clear idea about future progression and are more likely to remain on their chosen post-16 pathway'.[11] Meanwhile, the study by Blenkinsop *et al.* of Key Stage 3 and Key Stage 4 students in 14 schools found that those in the selective grammar school were most likely to have been influenced in subject choice by what they considered themselves to be good at.[12]

5.12 As with the findings on enjoyment and motivation, it is striking that our findings on the

11. Bowes *et al*., 2005: 6–7.

12. Blenkinsop *et al.,* 2006: 61.

considerations that go into students' subject/course choices are consistent with those reported in systematic reviews of relevant UK research, none of which have focussed specifically on students of higher ability.

5.13 Our students reported being most influenced in their decision-making by enjoyment. Blenkinsop *et al.* reported this to be the case across the cohort of 165 students in their study at these two thresholds of choice: 'Significant numbers of both Year 9 and 11 students reported that they chose their subjects primarily because they liked and enjoyed them'.[13] Meanwhile, our students reported that making options choices was difficult. In this respect they conformed with the 'determined realists' who were the most common group out of eight 'educational mind-sets' identified by Blenkinsop and her colleagues among their 'mixed-ability' Year 9 and Year 11 samples. The 'determined realists' were optimists, saw such decisions as critical, were quite 'low risk' in their decision-making, building on what they were already good at, and had a strong work ethic.[14]

5.14 Much of the literature on subject choice and the career orientations of this age group has examined the relative influence of parents, teachers and friends. In our study the self-confidence of students to make their own choices was more marked than in some other studies. The influence of teachers over the specific decisions made (as opposed to the reinforcement of teachers in a school of good practice in the *process* of decision-making) appeared weaker than in some other studies[15] (studies which also suggest that teacher influence over students' specific decisions has weakened since the early 1980s[16]). Our 'academically-able' students appeared less influenced by their parents than were the 'mixed-ability' Year 9 and Year 11 samples in the study by Blenkinsop *et al.*,[17] while the peer-group pressure in the same study which exerted influence over lower-attaining students[18] was almost absent in our data.

5.15 A third theme in this area of our research was the manageability of workload. This appeared to be an area where the influence of the school culture/ethos was discernable in our data. As reported in other studies,[19] some students across all of our schools mentioned a perceived increase in workload on moving from Key Stage 3 to Key Stage 4. More particularly, those studying a curriculum in Key Stage 4 comprising only GCSEs spoke about their concerns in managing workload and potentially competing deadlines, while those at the two selective grammar schools aired some dissatisfaction with the compulsory technology subjects in one (School D) and, in the other, a sense that the pace of the curriculum could lead to over-pressurised decisions about curriculum choices (School C), a finding also reported in the context of top maths sets by Boaler, *et al*., 2000. In the case of School C, some students expressed concern that mistaken choices would be hard to rectify later; Blenkinsop *et al.* reported that students in their 'determined realist' category were especially likely to see such decisions as critical. In their study they, too, found this strand evident in their grammar school sample: 'students had frequently looked to teachers for reassurance that they had made the right decisions: 'to check I'm going the right direction' or 'to make sure'.'[20]

5.16 Two other examples of students' choices being influenced by particular school cultures in our data were found in Schools E and F. School E was the most rural of the non-selective schools and had the largest group intending to leave full-time education at 16. In the other Welsh school (School F), students described being 'strongly advised' to include an academic subject amongst their 'vocational'/practical choices but felt that the commensurate advice had not been given to students choosing to study a programme comprising entirely 'academic' subjects.

5.17 *Plans for after leaving school*
In our study:

- Three-quarters of students expected to be in full-time learning post-16 or post-18.
- Uncertainty about this was higher in schools with lower average student attainment, among boys and among older respondents whose programme included 'vocational' elements.
- Regardless of school-type, older respondents were more likely than their younger peers to have a clear job/career in mind. However, this was accounted for by a very strong increase in this response among boys, accompanied by a small decrease among girls.
- Older respondents whose programmes included 'applied'/'vocational' elements were much more likely to have a job in mind.

13. *Ibid*., 52.
14. *Ibid*., 124.
15. *Ibid*., 52.
16. Adey and Biddulph, 2001: 443; McCrone *et al*. 2005: 38.
17. Blenkinsop *et al.,* 2006: 52.
18. *Ibid*., 54.
19. Lord and Jones, 2006: 55; Blenkinsop *et al*. 2006: 126.
20. *Ibid*., 61.

- Most students valued strongly a link between the kinds of learning they enjoyed at school and the content of the future job they would have.
- Regardless of school-type, this desire was equally strong for younger and older girls but very much diminished for older boys. Meanwhile, there was a clear link between those at Key Stage 4 whose programme comprised solely traditional GCSE subjects and those who hoped strongly to continue a similar form of learning once at work.
- Key Stage 3 and Key Stage 4 participants had clear views as to the type of learner they were, the ways in which they preferred to learn and how this helped them to produce their best results. In the two selective grammar schools this focus on learning styles had been encouraged by students taking a diagnostic test, both age groups in these schools reporting that they considered the test had accurately assessed their learning dispositions.

5.18 *Commentary (in relation to previous studies)* Several previous studies point to the fluctuations that occur in the minds of students about their future plans as they proceed through Years 7–11 (see Blenkinsop *et al*., 2006: vii-viii). In our research older respondents were more likely than their younger peers to have a clear job/career in mind, accounted for by a very strong increase in this response among boys, and a small decrease among girls. Similarly, more girls than boys at Key Stage 3 had decided that they wanted to attend college or university at age 18 and were considerably more likely to have job plans in mind, but by Key Stage 4 girls in our sample were now even more determined to go to college or university at 18 but were no longer at all as sure about their occupational plans. These latter findings are in line with gender patterning reported in other studies.[21]

5.19 As might be anticipated, our data concerning the plans of students for after leaving school revealed a more widespread expectation of staying in full-time learning post-16 and post-18 than is the pattern nationally (78% in Year 10/11 expecting to attend higher education compared to the current national figure for participation up to the age of 30 of c.37%[22]). Joan Payne (2003: 45) has described how in the largest cohort studies it is well established that, after controlling for other variables, staying-on rates are clearly affected by individual school culture. A suggestion of this in our data was that among our 'academically-able' groups, those in schools with lower average student attainment, were less certain about their post-school plans, although School A had managed to buck this trend.

5.20 Elsewhere in our research about future plans, we asked questions of students which do not appear to have been broached in previous studies of this kind. We asked about the extent to which they hoped that the kinds of learning they enjoyed at school would be replicated in the content of their future job, along with reflections of their own about the type of learner they considered themselves to be. These data are summarised among the points discussed in the next section.

The distinctive profile of our 'academically-able' student sample compared to previous studies

5.21 The distinctive profile of the 'academically-able' students in our study compared to previous research lies partly in it being the first study of its kind. In this light, our research is of interest when the data replicate findings generated by the other studies we have consulted (all of which draw their sample from students representative of abilities across the entire age cohort) as well as when they do not conform to previous research. First we summarise briefly the areas of broad replication, before drawing out the key contrasts/areas of new enquiry in our data.

5.22 Perhaps the most clear-cut finding emerging from our study is that (as in other studies), regardless of the type of school they attended, or the type of Key Stage 4 programme they followed, our 'academically-able' teenagers enjoyed their school learning, valued practical learning just as much as more abstract forms and yet (in a higher proportion than is found nationally) mainly expected to follow traditional subject learning post-16.

5.23 One reason for the value they placed on practical learning was their very strong enjoyment of physical, expressive and experiment-based learning, compared to more analytical forms (a finding also reported for more 'mixed-ability' samples in other studies). For some of our students, a second reason (also reported for other groups elsewhere) related to the link they made between the types of learning they enjoyed, the perception they had of the areas in which

21. Payne, 2003: 36–38.

22. See Richardson, 2009a: 7 n. 34.

they excelled and the way this link had been reinforced through formal attainment.

5.24 Although some academically-able students in our sample were making 'vocational' choices, a greater number of our students found that their record of existing and projected attainment (reinforced by the ability measurement tools that schools use) was having the effect of pushing them away from practical learning after completion of Key Stage 4 (or even during this phase[23]). Moreover, we suggest that this dynamic helps to explain why our academically-able students considered it difficult to make course choices, even though they reported very strongly possessing the self-confidence needed to make them.

5.25 At Key Stage 3 our students considered that by far the most important of the general considerations influencing their choices was the 'type of learning' they found most enjoyable, for example whether these were 'ideas subjects' or 'practical subjects'. At Key Stage 4 two general influences were equally strong and were dominant when planning for the next stage: those kinds of learning that were enjoyable and those seen as related to the individual's future plans (the choices available at this stage were now much broader).

5.26 It would seem that by choosing to study in Key Stage 4 either solely additional GCSE subjects, or mostly GCSEs leavened with an 'applied subject' or 'vocational' course, a large majority of the younger age group in our sample were seeking a balance between their enjoyment of practical learning and a consolidation of their specific abilities in the light of attainment to date. Three main benefits for this attempted balance were widely mentioned: the relevance of practical learning to adult life is just as strong as for core subject learning; there needs to be a balance and mix of activities within the school week; and knowledge and understanding within the curriculum is enhanced by a mix of learning types. Within this pattern, more boys than girls at Key Stage 3 were concerned to choose options for the specific purpose of increasing likely subsequent exam success.

5.27 Meanwhile, the older group responded to the greater choices on offer by prioritising more highly options linked to post-school plans (now clearer to them – especially among girls – than when they made their choices in Key Stage 3) and in a manner less influenced by the advice of particular teachers (a finding replicated in other studies). By this stage of schooling these students were also able to draw on the experience created by the choices they had made at the previous stage (i.e. whether or not to include 'applied'/'vocational' elements in their Key Stage 4 programme).

5.28 There were three further effects on the older age group following programmes comprising solely traditional GCSE subjects: 'GCSE-only' students were more influenced in their post-16 choices by the kind of learning they considered would be easiest/most enjoyable at the next stage; they were less likely, as yet, to have a career in mind; and they valued more highly the link between course choice post-16 and the plans they had for when they were 18 (i.e. higher education courses for the large majority).

5.29 Finally, these dynamics among our 'academically-able' Key Stage 4 students were also influenced by gender. Girls in the older group were more positive about their learning, regretted more the types of learning they found difficult, found making choices slightly more difficult than boys, were more likely to be influenced in their choices by future plans (i.e. attending university rather than, as yet, having a clear career goal) and were more risk averse when making these choices. Girls were also much more consistent in their strong desire across age groups (and compared to older boys) to see the kinds of school learning they enjoyed replicated in the jobs they would do eventually.

5.30 From this we can conclude that, while difficult, choice-making in Key Stage 3 allows these 'academically-able' students to strike a balance between their enjoyment of practical learning and the more abstract studies in which they do well. As part of this, they have formed a clear view as to the kind of learner they are. By the time they face choices in Key Stage 4 about the post-16 phase, their options have broadened and they have matured in self-understanding; and this, in turn, has been influenced by the choices that they have already made and their reflection on the kind of learning on which they thrive.

5.31 For those who either 'played safe' (more girls than boys) or who had never been tempted

23. See, Colley and Comber, 2003: 64, for a similar study.

to broaden beyond an established pattern of high attainment in traditional subjects, there was, as yet, no pressure to step off the 'academic' ladder. Such students felt, more strongly than their counterparts pursuing courses with an 'applied'/'vocational' element, that the logic of their choices to date had a longer-term rationale (effective preparation for the university courses that three-quarters expected to access). They also hoped that their learning preferences at school would be components of their subsequent careers.

5.32 These cohort-level patterns disguise significant variation in the responses generated by the students at each school – a 'school culture' effect which will have been influenced in part by the specific characteristics of each school. For example, uncertainly as to post-18 plans was correlated in our data with the average attainment at GCSE achieved by each school in 2009 (the highest levels of uncertainty being linked to the schools with lowest average attainment, but with School A interrupting this pattern). Similarly, curriculum policies in schools B and D appeared to foster a particularly widespread interest among our student samples in experimentation and 'real world' problems, respectively. Meanwhile, in both of the grammar schools (Schools C and D) students appeared to be under the most pressure when making their subject/course choices.

5.33 However, it was striking that in nearly all of the data, where there were fluctuations in response patterns between schools these could *not* be clearly attributed to 'school-type' in terms of our three pairings (English high-attaining grammar schools, Welsh mid-attaining 11–18 comprehensives following the Welsh Bac and lower-attaining English 11–16 comprehensives).

5.34 From this we conclude that, within the range of attainment represented in our sample as a whole (the top half of students in schools where average '5 A*-C' GCSE attainment in 2007–08 ranged from 99% to 42%), it is the similarity of outlook and disposition of students – and the replication of many of these outlooks and dispositions in the findings of other studies drawing on more 'mixed-ability' samples of students – that is the most significant result of the empirical part of our study. The great majority of students valued practical and expressive learning highly but, in the main, gravitated to more abstract learning as they progressed through the teenage years in order to be well-positioned to continue in full-time learning after school.

Overall findings

5.35 The first key result of our research has been to show that, in a variety of schools in 2010, 12–16 year olds identified as academically-able in a variety of schools reported a very similar sense of enjoyment and motivation in their learning. This was *not* predominantly due to their ability to secure the high grades in public examinations which their mental test scores predict, and was not especially well reflected in the learning activities they experienced day-to-day in school. Moreover, these students were relatively uninfluenced in their enjoyment and motivation by how their school was organised (for example, by selection at age 10/11 or not) or by the overall attainment of its students (for example, school-wide GCSE scores well above, or hovering around, the national average for all schools). Neither was their enjoyment influenced by a sense that they were likely to be among the highest attainers in their schools (which they were). Most striking was the strong evidence to show that 'academic' ability did not preclude the very strong satisfaction these young people derived from practical and applied learning. This mix they considered (correctly) to be 'vocational' in the broad sense of helping them to explore the world and understand their place within it, as well as in the narrower sense of keeping them on a flexible path to further educational opportunity after the end of schooling.

5.36 The second key result of our research overall is to pin-point the origin of modern conceptions of merit and ability in education and their continuing influence. Two stages in this process were identified.

a) At the onset of large-scale industrialisation in Britain ('the first industrial nation'), ideas about useful knowledge and its curriculum organisation were most energetic among dissenters, in church schools and in the myriad of small private establishments offering occupational and/or social preparation. Only slowly did the universities and leading endowed schools respond. When they did so (from 1840s) it was, in the case of the universities, to codify 'merit' and 'ability' (imprecise ideas loosely related to 'intellect' and 'talent') through public examinations and, in the

case of the leading schools, to broaden the classical curriculum so as to develop 'character' and become the engine room for producing leaders for the richest country in the world with the largest empire in human history.

b) On the basis of this powerhouse, English intellectuals (notably Francis Galton) became curious about how to measure human ability and intellect. They and their successors (from *c*.1890–1920) settled on abstract reasoning as the key device because its measures seemed most valid. Such measures also related closely to the written learning demanded of examination candidates in mathematics and language with the result that, by the mid-1950s, these measures had supplanted 'character' as the agreed proxy for the demonstration of leadership potential and the qualities required of professionals. This 'technology' of mental measurement, reinforced by examination success, was extended and elaborated throughout the twentieth century and was being used actively in our six case study schools in 2010 in the form of various cognitive tests, combined with attainment tests in 'core' subjects.

5.37 The third overarching finding is that the national terminology of education in this area is inaccurate and, as a result, frames debates that are bound to be muddled. In particular, in England and Wales (and elsewhere) the term 'vocational' learning is widely and falsely used as a synonym for 'early orientation towards occupational learning'. Logically, all learning is vocational in the broad sense (equating to the German concept of *bildung*). However, some young people opt earlier than others for curricula framed by broad occupational categories (similar to *beruf* in German but, crucially, with much less of a sense of calling, vocation and dignity legitimated by the wider society). As an example of this, in 2010 a 14 year-old in England could embark on a Diploma in Engineering while an 18 year-old could defer such study until enrolling on an undergraduate course with the same title.

5.38 The fourth overarching finding is linked to the third. This is that there remains a strong set of connections, unbroken from the later nineteenth century (and found among the students in this study), between concepts such as 'merit' and 'ability'; later specialisation; and success in those public examinations in traditional subjects (for example, A-level and undergraduate degree courses) designed to sort for the higher level occupations. The significance of these interconnections is not just the power with which they frame secondary school education. It also resides in the extent to which they continue to structure the entire system of secondary schooling in an era of fundamental change in global organisation, similar to that of the mid-nineteenth century which brought about the system we currently follow.

5.39 This raises the fundamental question of the extent to which the secondary school curriculum in England and Wales remains well-suited to contemporary conditions. The answer to this question is complex and requires the separation of some of the key claims and tensions discussed in Section Four of this report.

a) *The vocational purposes of school*. As we saw earlier, over the last eight centuries (at the least) schools thrived when there was a good alignment between what they offered and what students and their parents wanted from them as a foundation for success in adulthood. Over the entire period a private sector responsive to this dynamic has existed alongside schools with permanent funding (through endowment and, since 1902, state support). Only in a few instances has the broad vocational promise of schools been found wanting or been overthrown. In the 1530s, the monastic orders were dismantled and much of the curriculum within their schools became redundant; in the eighteenth century, a majority of endowed schools ossified, in part due to the torpor of the universities they served; and in the 1960s, selective grammar schools were unable to convince most in the wider society that their grip on certain vocational avenues should be safeguarded. For a great majority of the entire period the curricula of these varied schools have been, essentially, both practical and vocational.

b) *The role of the universities (and of employers).* For over four centuries the secondary school curriculum has been patrolled from above by the universities. Admittance from one to the other was only semi-formal until the early twentieth century. Since the introduction of the Higher School Certificate in 1918, requisite student ability has been defined

in terms of analytical subjects regulated nationally, with competition intensifying in each successive generation – the ever purer meritocracy guarded over vigilantly in our own day by the Sutton Trust. This hierarchy is one that employers have been content to endorse over the last century with national subject examinations and degree awards being the main tools used to regulate entry to the labour market.

c) *The meritocratic curriculum in the comprehensive secondary school*. Since the mid-1960s comprehensive secondary schools have laboured hard to accommodate two competing traditions: that of the elementary/modern school (with its emphasis on a securing for the majority of the age group – the 'less-able' – a good grounding in essential, basic skills coupled with experiential learning) alongside that of the grammar school (with its focus on reward deferred subsequent to further study in those analytical subjects preparing a minority of the age group – the 'more-able' – for higher-level occupations). This accommodation has been characterised by an uneasy mix of egalitarian and meritocratic impulses. The latter have won out overall, with merit defined by attainment in a 'core' of traditional subjects and required by a majority in the middle-class as a condition of engagement with the comprehensives. Since the early 1990s this requirement of the schools has been reinforced aggressively by governments of all parties through a new age of 'payment by results'.[24]

d) *The search for 'parity' between grammar and modern/technical education.* While all systems of education in industrialised countries allocate reward through hierarchies of attainment, it is in England that an unrealised 'parity of esteem' had been expressed most earnestly and repeatedly as an official objective of schools policy since the late 1930s.[25] As the present study has shown, several strands of development have rallied to this cause and ensured that it has remained an unrealised goal, most notably a desire to elevate technical education along German lines but in the absence of political and employer realism as to what this would involve, alongside an egalitarian impulse on the part of many in the schools to dismantle the status hierarchy of subjects along what are seen (not always accurately) as Nordic lines but with tools far too blunt for the job.[26] As soon as such 'parity' was espoused in official circles a senior Board of Education official concluded, in 1937, that it would be seen by many as 'nothing more than an attempt to spoof the public mind, and by giving a new wrapper and a new name persuade them to accept the old cheaper article as the higher class goods'.[27] A succession of worthy bodies, including the Tomlinson working group reporting in 2004, failed to solve this fundamental problem. Most recently, a need for realism on this question has been underscored once again in the Wolf report of 2011 with its stricture against bureaucratic 'equivalences'.

5.40 This is the context within which our 'academically-able' students were making their way through lower secondary education in 2010.

5.41 Just like most of their teenage peers with lower formal attainment[28] they were largely enjoying school and preferring practical and expressive forms of learning. However, they had also absorbed fully the nature of the meritocratic race in which they were runners. From a wide variety of social backgrounds, they had reflected on their achievements to date and related these to the structure of opportunity in front of them. For a minority (probably the lower attainers in our 'high-ability' sample), the more immediate goal of seeking out occupationally-specific skills after compulsory schooling had informed their decision-making about course choices and had probably served to reinforce their lower preference for the learning associated with traditional analytical subjects.[29] However, for a large majority (especially among the girls), a need to defer such motivations and rewards was accepted, although many hoped that practical enquiry methods would accompany the GCSE and GCE A-level subject learning that they would encounter next and be part of the workplace roles they would assume later in life.[30]

5.42 As such, most of the students in our sample appeared to be leaving the stage of school where the physical and the active had, almost unnoticed, infused their day-to-day experience. As they matured and realised for certain that they were high attainers within their peer group, they were taking stock of

24. Stemming from the Education Reform Act of 1988 which has led to a revival of the way in which elementary schools were governed during the period 1862–97. The lessening of this grip in Wales since devolution has led to the current position where politicians in Cardiff have to decide between the competing merits of maintaining clear difference from England and a decline in attainment in core subjects as school accountability has been relaxed, see Burgess *at al.,* 2010.

25. Initially, official aspiration related to 'equality of status' and 'parity of esteem' between types of school (Board of Education, 1938: 274, 282, 293, 309, 311, 319, 339, 340; Board of Education 1943: 14, 46; Banks, 1955: 147; see also McKibbin, 1998: 212–61), before becoming applied routinely from the 1960s to the separate curricular traditions inherited by the comprehensive schools. The phrase appears only to have become current in Scotland in the second of these two phases.

26. Rivalries between groups of teachers with different qualifications and social backgrounds have also been a feature of this struggle, a point brought out well for the early twentieth century in Banks, 1955.

27. McCulloch, 2007: 140–41.

28. Reported in the other studies reviewed in paragraphs 5.5–9, 5.11–16 and 5.18–20.

29. See paragraphs 3.19, 3.41, 3.51, 3.59, 3.70, 3.71, 3.78, 3.90, 3.94, 3.98, 5.16.

30. See paragraphs 3.19, 3.41, 3.59, 3.71, 3.78, 3.80, 3.85, 3.90, 3.94, 3.96, 5.21, 5.28, 5.34.

their situation, seeing the vocational value of traditional subject-learning comprising abstract and analytical study and seeking to accommodate the kinds of activities they most enjoyed with those that now seemed most necessary.[31] Most trusted strongly in their personal ability to navigate this terrain.[32]

5.43 From all of this we conclude the following in relation to the project brief:

- Practical and 'applied' learning at school has a strong and positive effect on the motivation of 'academically-able' students. Moreover, our most significant fieldwork finding is the similarity of outlook and disposition of these students compared to those in other similar studies, regardless of the type of school that each attends.
- However, we have also found that despite the high value placed on this type of learning by a great majority of 'academically-able' students, they will, in the main, gravitate to more higher-level analytical learning as they progress through the teenage years. The processes at work here include both the reinforcement effect of prior high attainment but also a readiness to see the vocational value of traditional subject learning in terms of deferred reward. This latter outlook stands in continuity with that of similar students in England and Wales over many centuries, reinforced by the norms and values of the universities since the late sixteenth century, by mid-Victorian ideals of merit in English education and, over the last 100 years, by the link established around the world between attainment in 'core' subjects and IQ/cognitive reasoning tests.
- As such, the effect of practical and 'applied' learning on the choice of post-16 learning route and attitudes towards career options of 'academically-able' students appears lower than that found in other studies where lower-attaining students or samples of 'mixed-ability' are the focus.

Implications

5.44 Despite all of the claims now being made for the significance of neuroscience in education, and notwithstanding the popularity among teachers of theories of multiple intelligence and bespoke 'learning styles', there are no measures of ability on the educational horizon to challenge the ascendency of the IQ/subject-attainment nexus developed over the last century.

5.45 Should this matter? One argument that it does derives, rather uncertainly, from social justice. Here the egalitarian impulse which saw comprehensive schooling established through much of Europe after 1950[33] finds succour in the idea that 'multiple intelligences' matched to personalised learning styles might establish new, more 'inclusive' currencies of merit. Possibly so, but the experience of history reviewed here makes this seem unlikely: claims made for merit in secondary schooling independent of university validation (with employer support) have had a limited track record of success.

5.46 A second argument points to global economic change. A significant shift of capitalism to the East is seen as likely to generate within Britain (and similar economies) huge structural change on a scale last seen in the nineteenth-century period of industrialisation. Here, the argument for curricular reform would relate to a recasting of the vocational promise of schooling. From the 1830s to the 1850s one educational response to large-scale industrialisation was to concede that the grammar schools must be transformed and redefine their curricula, and that the universities should do likewise. Perhaps we are nearing that point again.[34]

5.47 On this latter reading, some of the existing hierarchies in education may constitute part of a wider problem. Included here might be the pecking orders of contemporary undergraduate study, the continuing influence on these of mid-Victorian mentalities and their channelling effect on secondary schools (selective schools especially). Included also might be some of the other assumptions, habits and routines of secondary schooling, for example the widespread association of 'vocational' learning (a misnomer in this context) with the lower-attaining student, alongside a taken-for-granted belief that the subject boundaries of the last century and their associated working methods are fit for a world where living standards in the West are likely to fall, occupational structures change significantly and priorities move in the direction of means for solving complex global problems of sustainability.

31. See paragraphs 3.23, 3.24, 3.62, 3.63, 3.70, 3.71, 3.86, 3.97, 5.21.

32. Where there were complaints about the support provided these were relatively minor and lay in: the early choices required of those following the accelerated curricula operating in both grammar schools; the overt guidance given in one of the Welsh comprehensives that those attracted to more occupationally-related courses at Key Stage 4 should be careful not to turn their back on traditional subject-learning (but not vice versa); and the one school were compulsory courses were required of students in technology as part of an attempt to disrupt the gendered subject choices that might otherwise be made: see paragraphs 3.48, 3.67, 3.75, 3.76, 3.88.

33. See Wiborg, 2009.

34. Brown et al., 2010.

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The impact of practical and 'vocational' learning on academically-able young people aged 11–16

A report for the Edge Foundation

Overview
Edge commissioned the University of Exeter to investigate the impact of practical and vocational learning on the motivation, attitudes and achievement of 'academically able' young people in six schools in England and Wales. The authors also reviewed the history of secondary education in England, showing how we have come to value abstract and analytical learning more highly than practical and vocational education.

Key findings
Practical and applied learning at school has a strong and positive effect on the motivation and achievement of 'academically-able' students. This was true across all six schools.

Despite their enjoyment of practical and applied learning, however, a great majority of these students gravitate to more abstract/analytical learning as they progress through the teenage years. This reflects, in large part, a growing realisation that abstract learning offers the best prospect of a place at a high-status university – and this matters more to them than their enjoyment of practical learning.

Modern ideas about education continue to be dominated by 19th century concepts of merit and ability, which were based on abstract reasoning rather than the ability to design and make things or solve practical problems.

Technologies used to measure intelligence are widely used in schools. They are closely related to attainment tests in 'core' subjects and are used as a way of predicting likely success in traditional GCSE subjects. This has the effect of treating other forms of ability as second-best.

Similarly, achievement in traditional subjects is widely used when selecting candidates for high-status university places and jobs, while technical and 'vocational' qualifications have largely failed to achieve the same currency.

Taken together, these findings raise a fundamental question: to what extent does the secondary school curriculum in England and Wales remain well-suited to contemporary conditions?

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