

Curriculum and curriculum access issues for students with special educational needs in post-primary settings

An international review

NATIONAL COUNCIL FOR SPECIAL EDUCATION RESEARCH REPORT NO.10

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Foreword

The NCSE is pleased to publish this new literature review on curriculum and curriculum access issues for students with special educational needs in post-primary settings. The ongoing development of an appropriate education linked to the curriculum for students with special educational needs requires continued attention, particularly at post primary level when education becomes more subject focused.

This report presents an overview of research evidence on this topic in Ireland, Northern Ireland and further afield internationally, and highlights key lessons arising from the literature. The report also highlights gaps in the evidence base, particularly the need for more robust studies to assess what works in ensuring curricular access for students with special needs. It also identifies themes for future research to address these gaps.

This review is both valuable and broad ranging and will be of great interest to parents, practitioners, policy makers and others working to support pupils with special educational needs. As a follow on from this review, during 2012 the NCSE will commission further empirical research to examine the participation, engagement and curricular experiences of students with special educational needs in a range of different types of second level schools in Ireland.

**Teresa Griffin,
Chief Executive Officer**

Keywords

Assessment, certification; curriculum; curriculum access; curriculum pathways; differentiation; inclusion; individual education plans; international; Ireland; post-primary; literature review; special educational needs; training; transition.

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Glossary

Banding (see also 'streaming')

Both banding and streaming are approaches to teaching pupils in ability-based groups. With banding, the year group is divided into two, three or four bands on the basis of a measure of general ability. Each band contains more than one class and pupils may be regrouped within each band. Bands remain consistent across subjects, but each student may be in different bands for different subjects (Department of Education and Employment (UK), 1999¹). Education specialists argue both for and against teaching in ability based groups. Evidence suggests that for pupils with special educational needs, streaming can militate against inclusion, and lead to lower self-report satisfaction for students and pupils (see Section 2.3.1.2).

Co-teaching

This involves two or more teachers, usually one general and one special educational needs teacher, planning and delivering the curriculum together.

Curriculum

This sets out what is to be taught, how it is to be taught and how learning is to be assessed².

Department of Education and Skills

Before 1997, this was known as the Department of Education. From 1997 to 2010, it was the Department of Education and Science (DES). Today the Department of Education and Skills is responsible for education policy at primary, post-primary, and tertiary levels in Ireland. The relevant Minister for Education and Skills is responsible for ensuring implementation of the Government's education policies. In this review, we distinguish between reports published by the Department of Education, the DES (Science) and the DES (Skills).

Differentiation

This is the process of varying content, activities, teaching, learning, methods and resources to take into account the range of interests, needs and experience of individual students (National Council for Curriculum and Assessment, 2007, p8).

Further Education and Training Awards Council (FETAC)

FETAC is the national awarding body for further education and training in Ireland. FETAC validates awards at Levels 1 to 6 of the National Framework of Qualifications and works with a range of providers in education and training centres, colleges and the workplace.

1 <https://www.education.gov.uk/publications/eOrderingDownload/RR166.pdf>

2 NCSE, 2009. A request for tenders to undertake a review of the international research literature on curriculum and curriculum access issues for students with special educational needs in post-primary settings.

Inclusion

This refers to a philosophy of educating all students together in regular or general education settings regardless of the presence or absence of disabilities, using a range of methods and services to provide for the varied learning needs of individual students (Marschark & Spencer, 2009). Inclusion involves addressing and responding to the diverse learning and cultural needs of learners and removing barriers to education through accommodation and provision of appropriate structures and arrangements to enable the learner to achieve the maximum benefit from attendance at school (Winter & O’Raw, 2010).

Individual education plan (IEP)

An IEP is a written document prepared for a named student that specifies the learning goals for the student to achieve over a set period of time and the teaching strategies, resources and supports necessary to achieve those goals. The plan is developed through a collaborative process involving the school, parents, the student (where appropriate) and other relevant personnel or agencies. It refers to the adapted or modified aspects of the educational programme (NCSE, 2006³).

National Council for Curriculum and Assessment (NCCA)

The NCCA advises the Minister for Education and Skills on curriculum and assessment issues in Ireland. It was prescribed as a statutory body under the 1998 Education Act. Its role is to lead developments in curriculum and assessment and to support the implementation of changes resulting from this work. The NCCA works in partnership with stakeholders in education, including teachers’ unions, school managerial bodies, business and industry sectors, parent representative organisations, teacher subject associations, representatives from the DES, and other bodies including the State Examinations Commission (NCCA, 2008).

National Council for Special Education (NCSE)

The NCSE was set up in Ireland to improve the delivery of education services to persons with special educational needs arising from disabilities, with particular emphasis on children. The NCSE was first established as an independent statutory body by order of the Minister for Education and Science in December 2003. As of October 1st, 2005, it was formally established under the Education for Persons with Special Educational Needs Act 2004 (EPSEN Act; Government of Ireland, 2004). The NCSE allocates additional teaching and other resources to support the special educational needs of children with disabilities. It took over this function from the then Department of Education and Science in January 2005.

Pedagogy

This is the art or science of teaching. For the purposes of this report, pedagogy will be used to refer more specifically to the style of teaching and instruction used to impart knowledge, that is, the emphasis is on how people teach.

3 National Council for Special Education (2006). Guidelines on the individual education plan process. Dublin: NCSE.

Post-primary education

In Ireland, this relates to students aged 12 to 19 years and consists of three years of “junior cycle” followed by two or three years of “senior cycle”, both culminating in examination and certification.

Special educational needs (SEN)

Under Section 1 of the Education for Persons with Special Educational Needs (EPSEN) Act, 2004, “special educational needs” is interpreted as “a restriction in the capacity of the person to participate in and benefit from education on account of an enduring physical, sensory, mental health, or learning disability, or any other condition which results in a person learning differently from a person without that condition” (NCSE, 2006). The definition of special educational needs in Ireland excludes pupils who are gifted and talented.

Special educational needs co-ordinator (SENCO)

This is a teacher with responsibility for co-ordinating special educational needs provision within a school (Department for Education (UK), 2011).

Special educational needs organisers (SENOs)

SENs are appointed by the National Council for Special Education and provide a direct service to the parents of children with special educational needs and to schools within designated geographical areas. SENs are mainly involved in resourcing schools to meet the needs of children with special educational needs and in ensuring resources are used efficiently in schools. SENs also have a role in supporting and advising parents of children with special educational needs. They identify possible placements for children with special educational needs, liaise with the HSE and other services, engage in discussions with schools and assist in planning the transition of children between schools and onwards from schools to further/higher education and other services.

Special Education Support Service (SESS)

SESS supports teaching and learning in relation to special educational provision in Ireland. It co-ordinates, develops, and delivers a range of professional development initiatives and support structures for school personnel working with students with special educational needs in mainstream primary and post-primary schools, special schools, and special classes. The SESS operates under the remit of the Teacher Education Section (TES) of the Department of Education and Skills.

State Examinations Commission (SEC)

This is responsible for the development, assessment, accreditation, and certification of the Irish State’s “second-level” examinations: the Junior Certificate and the Leaving Certificate. The State Examinations Commission is a non-departmental public body under the aegis of the DES.

Special needs assistants

Special needs assistants (SNAs) have a non-teaching role focused on the care needs of pupils with disabilities in an educational context. They are recruited to assist pupils with a significant medical need, a significant physical or sensory impairment or whose behaviour is such that they are a danger to themselves or others. SNAs should not be used for pupils with a general learning disability who need mainly additional academic input⁴.

Streaming

This is where pupils are assigned to classes on the basis of a measure of general ability: the most able pupils are in one stream, the next most able in the next stream and so on. Pupils remain in these streamed classes for most or all subjects (Department of Education and Employment (UK), 1999⁵).

Teaching assistants or learning support assistants

These are classroom assistants who, under the supervision of a trained teacher, offer educational support to students individually or in small groups. Some have just basic training, but others are more highly trained and experienced and higher level teaching assistants may supervise a class in the absence of a teacher for one or more sessions. There are no teaching or learning support assistants in the Irish system.

Universal design

This refers to the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people, regardless of age, size or disability (Disability Act 2005). When universal design is applied to learning, curricular materials are flexible enough to suit all learners, and the activities provided are accessible to students across a diverse range of abilities (Winter & O'Raw, 2010).

4 NCSE, 2006 <http://www.ncse.ie/uploads/1/Circular07-02.pdf>

5 <https://www.education.gov.uk/publications/eOrderingDownload/RR166.pdf>



Executive summary

Introduction

This report presents the findings of an evidence review designed to summarise what is known about good practice concerning the content of, and access to, the school curriculum for students with special educational needs. The review focused on post-primary settings where the issue is particularly pertinent; the focus of education shifts from being student-centred at primary level to being much more subject-focused in post-primary settings.

The research team delivered two literature reviews: one national, one international. Each was designed to draw out key issues around curriculum and access to the curriculum for students with special educational needs – including gaps and trends in the evidence base – to help the National Council for Special Education (NCSE) plan its future research agenda.

The project aims to:

- deliver a narrative review of research from the Republic of Ireland and Northern Ireland to identify key issues and themes within the area of curriculum and/or curriculum access at post-primary level for students with special educational needs relevant to the Irish context
- deliver a systematic review of the international literature on these priority themes for students with special educational needs at post-primary level
- summarise key findings from the reviews to enhance understanding of curriculum issues in order to assist the NCSE to plan further empirical research as necessary, and to formulate policy advice on the matter to the Minister.

Method

The research team searched for evidence using electronic databases (for example British Education Index [BEI], Education Resources Information Center [ERIC – the world’s largest digital library of education literature], and Applied Social Sciences Index and Abstracts [Assia]), internet searches, the reference lists of included studies, searching the table of contents of REACH, the journal of special needs education in Ireland, and recommendations from the NCSE.

For the international review, the team applied predefined inclusion criteria to select studies. Searching the international literature, combined with knowledge of NCSE staff and advisers, uncovered almost 2,000 documents, of which 82 met the criteria for inclusion.

Main Findings

Based on the two reviews we conducted, it is clear that substantive gaps exist in the evidence on how the curriculum should best be designed, developed, adapted and delivered for post-primary students with special educational needs. However, despite the lack of robust evaluations to provide an unequivocal evidence-based position on good practice, the reviews nevertheless offer a useful account of current policy and practice both in Ireland and internationally that provide an enhanced understanding of key issues.

Policy in Ireland is consistent with the general view among most education professionals: that it is entirely fair and equitable that students with special educational needs should have access to a broad curriculum at the post-primary level⁶. *Education policy in many countries reflects this desire to deliver the curriculum to these students in mainstream settings as far as possible. As a consequence, much of the research we reviewed focused on the feasibility, options for delivery and views of staff on the inclusion of such students in mainstream settings.*

The evidence broadly supports the view that students with special educational needs can benefit from a flexible approach to curriculum adaptation and delivery. The literature cites examples that include the Leaving Certificate Applied course⁷, and the Universal Design for Learning approach⁸. Similarly, allowing these students more time to complete post-primary education⁹, and using the internet to deliver an alternative curriculum¹⁰ have both been shown to deliver positive results. The research, however, also points out the need to balance any potential benefits of flexibility against the need for students to meet standard criteria for accreditation and certification, and to prevent adapted curricula from becoming too narrow¹¹.

Not surprisingly, the available evidence shows that schools in Ireland and internationally vary in their effectiveness in delivering inclusion strategies for students with special educational needs.

Members of the teaching profession, in Ireland and abroad, are generally enthusiastic about providing a broad curriculum for such students but recognise the barriers and issues to successfully increasing access to the full curriculum.

Specific issues differ across academic subjects and activities¹². More generally, barriers to successfully delivering a broad curriculum for students with special educational needs include the responsibilities, attitudes and skills of educational staff¹³, a lack of specialised teaching materials and aids¹⁴, and a shortage of staff resources¹⁵.

6 NCCA, 2007;

7 Banks *et al*, 2010

8 Dymond 2006

9 Daly *et al* 2007

10 Daly *et al*, 2001

11 Alberta Education, 2009; Blatchford *et al*, 2009

12 Gray, 2009; Mariage *et al*, 2009; Newman, 2006; Smith & Thomas, 2006

13 Marschark & Spencer, 2009; Rose *et al*, 2007;

14 Douglas *et al* 2009; Ring & Travers 2005

15 Moran, 2007, ETI, 2006; Dart, 2007

Teachers frequently report feeling under-trained and under-resourced to support students with special educational needs in mainstream classes¹⁶. Training can improve their confidence and skills in helping students to access the curriculum¹⁷ and deliver better educational outcomes for the students¹⁸.

Teachers typically value support from special educational needs specialists¹⁹. Evidence supports the view that specialist, trained staff, working in schools alongside teachers, can be effective in both supporting class teachers and helping students to access the curriculum²⁰. Special educational needs support has been shown to improve basic skills such as reading and writing²¹, specific skills such as knowledge of Braille and signing²², and, more generally, social skills²³. In many countries, however, resources are often limited and as a consequence individual specialists can carry a substantial burden of work²⁴.

The evidence also strikes a note of caution: where special educational needs specialists or other less-well qualified personnel replace direct interaction with class teachers rather than supply an additional supportive role, outcomes for students can suffer²⁵. A key difference between special educational needs provision in Ireland and other countries is that special needs assistants do not teach or instruct the students they support. Evidence from this review suggests this non-teaching role is a sensible approach for non-trained staff.

Students with special educational needs can benefit where the transition from primary to post-primary settings is co-ordinated effectively²⁶. Just as effective communication between different educational providers is important for students to have positive²⁷ experiences during the transition from one educational stage to the next, so too are good links between specialist and mainstream schools²⁸.

Clearly students with special educational needs are not a homogeneous group and their requirements often vary considerably. As a consequence, broad strategic solutions are unlikely to deliver the same results across all students in this group. Unfortunately, much of the research we reviewed did not reflect this simple fact. Only a minority of studies included students with a specific type of special educational needs issue (six of the 32 studies included in the Irish review and 21 of the 82 studies in the international review). The remainder grouped students with special educational needs regardless of need, or did not specify what needs they had.

16 Moran, 2007; Lambe, 2007; Loreman, 2001; Martin *et al*, 2001; McNicholas, 2000; Murry & Murry, 2000

17 Dyson & Millward, 2000; Murry & Murry, 2000.

18 Piggot-Irvine, 2009

19 Lambe & Bones, 2008

20 Moran, 2007; MacBeath *et al*, 2006; Marschark & Spencer, 2009

21 Wilson & Michaels, 2006

22 Douglas *et al*, 2009

23 Dymond *et al*, 2006

24 Abbott, 2007; Newman, 2006; MacBeath *et al*, 2006

25 Blatchford *et al* 2004; Blatchford *et al* 2009; Rubie-Davies *et al* 2010; MacBeath *et al*, 2006

26 Daly *et al*, 2007

27 Maunsell *et al*, 2007; European Agency for Development in Special Needs Education, 2006

28 Ware *et al*, 2009; Abbott, 2006;

The teaching profession has a more nuanced view of special educational needs. This is reflected in individual education plans (IEPs) being widely considered as central to planning a broad curriculum for students. Evidence suggests IEPs can be particularly useful in post-primary settings²⁹. In this context, outcomes-based assessment can help teachers modify the curriculum to meet the needs of individual students³⁰.

Conclusions

Our review uncovered only a few well-designed evaluation studies into what works in designing, developing and delivering an appropriate curriculum that facilitates access for post-primary students with special educational needs. Too many of the studies we identified failed to distinguish between types of need and used the views of teachers and support staff as outcome measures rather than robust objective assessments. In addition, very few studies went to the trouble of assessing students' views. It is important to note, however, that an absence of evidence that a strategy or resource is effective is not the same as evidence that it is ineffective.

The reviews have certainly contributed to our understanding of curriculum issues and the knowledge gaps exposed can assist the NCSE to plan further research.

In terms of shedding light on effective policy, the reviews have confirmed the commitment of education professionals, in Ireland and globally, to providing students with special educational needs with access to a broad curriculum. While capacity to deliver such an aspiration varies, the available evidence suggests that effective strategies involve providing specialist support for teachers, using individual education plans to differentiate between special educational needs students, and taking a flexible approach to delivery; last, but by no means least, implementing these strategies successfully is more likely where services are characterised by effective communication between all stakeholders.

To conclude on key lessons we can extract from the review evidence, we highlight the following:

1. Policy in Ireland is consistent with the views of most stakeholders, that is, it is fair and equitable that students with special educational needs should have access to a broad curriculum at post-primary level.
2. What evidence there is suggests that providing effective access to an inclusive curriculum for students with special educational needs requires the support and commitment of school management and teaching staff.
3. Students with special educational needs are not a homogeneous group and their requirements often vary considerably. This means single, simple solutions are unlikely to work consistently with all such students.

29 NCCA, 2007; Fish, 2008; Keyes & Owens-Johnson, 2003; Martin *et al*, 2004

30 Maddison, 2002

4. Individual education plans are widely considered central to planning a broad curriculum for students with special educational needs, and are likely to be particularly useful in post-primary settings.
5. Training for teaching staff can improve their confidence and skills in helping students access the curriculum. Some countries have begun their development of special educational needs services with skills audits among the school workforce that are then used to inform content and delivery of training.
6. Teachers frequently feel under-trained and under-resourced to support students with special educational needs in mainstream classes, and value support from SNAs and other specialists. Evidence supports the view that specialist staff such as SNAs can help students to access the curriculum and thus make a positive difference to educational outcomes.
7. Modifications to the curriculum often require additional staff and/or technological resources. Although these can improve access, such resources are not always available or used appropriately. Teachers generally view the use of different technologies (for instance computer-based lessons) positively.

Themes for Future Research

A key outcome NCSE colleagues wanted from this review was the identification of potential research priorities in the context of developing a post-primary curriculum for students with special educational needs. The review has identified gaps in the evidence specific to this topic. Further research may be able to fill some of these either by carrying out new primary research to identify the views of teachers on what works and evaluating current practice; or by secondary research to identify and summarise evidence on other themes related to curriculum, which might identify more published research by searching in greater depth on more narrow topics.

The most important themes for further research are those to evaluate how best to use increasingly limited resources to improve outcomes for students. These include:

- Training and supporting class and subject teachers:
 - evaluating the most effective way of training teachers to enhance their confidence in teaching students with special educational needs and have an appropriate level of knowledge and skill about the needs of students with a range of special educational needs.
- Design and development of the curriculum:
 - identifying the most effective methods and strategies to design and develop an appropriate curriculum that minimises problems with access to that curriculum for post-primary students with special educational needs
 - assessing the effect of strategies to improve delivery of and access to the curriculum on educational attainment.

- Tools and methods for teaching and assessing students with special educational needs:
 - identifying those methods, tools and strategies for teaching and assessment most likely to improve educational outcomes for such students.
- Special Needs Assistants:
 - assessing and quantifying the benefit from use of special needs assistants to determine how best to use these resources, whether as trained specialists helping students to access the curriculum, or support staff that do not teach or instruct the students they support.

Robust research in this field is the exception rather than the rule. As with many other countries, the Irish Government needs to engage the education research community if it is to realise its aim of having special educational needs policy informed by strong evidence of good practice. Using research to improve practice may also be well served by implementing and supporting consistent evaluations of delivery processes across schools and settings, and then co-ordinating and disseminating the results in ways that practitioners can readily access.

1 Policy and Legislative Context

This section introduces the context of the report by summarising the Irish post-primary and special educational needs system.

1.1 Introduction

The curriculum essentially sets out what is to be taught, how it is to be taught and how learning is to be assessed³¹. In Ireland, the Minister for Education and Skills determines the curriculum for primary and post-primary schools. In turn, the Minister is advised by the National Council for Curriculum and Assessment (NCCA) which is also responsible for advising him/her on the requirements of students with a disability or other special educational needs. The NCCA is also obliged to consult with the National Council for Special Education (NCSE) on developing this advice.

The fundamental issue for this review is how curriculum for post-primary students is designed, developed, delivered and assessed, with a focus on the implications for students with special educational needs. Inclusion, the role of special schools, access to the curriculum in primary schools and for particular groups of students with particular types of special educational needs are the focus of other NCSE reports and so are not discussed in detail here. The curriculum and access to it, however, may vary by the setting in which teaching occurs. Consequently it makes little sense to discuss access to curriculum without some reference to the inclusion of students.

The NCSE recognises that a challenge raised by the concept of an appropriate education is how to “describe and develop an education for those with SEN that is strongly linked to the curriculum, which produces meaningful outcomes and which delivers benefits to those with SEN which are not separate from, nor devalued in any way relative to those available to their peers” (NCSE, 2006: p23).

This view is entirely consistent with the current internationally held belief that students with special educational needs should have access to a curriculum that is broad, balanced, relevant, and differentiated (NCCA, 2007: p6-7).

Post-primary education produces particular challenges for such students. At primary level, in many countries, students may be taught most or all subjects by the same teacher, in the same peer group and in the same classroom. Once they move to post-primary education, the focus is typically at subject rather than pupil/class level. This means that students with special educational needs may be taught in different peer groups for different subjects, by different teachers and in different geographical areas of a larger school. This can create particular challenges for those, for instance, who find it hard to interact with their peers or who have issues with mobility or vision (Douglas *et al*, 2009).

31 NCSE, 2009. A request for tenders to undertake a review of the international research literature on curriculum and curriculum access issues for students with special educational needs in post-primary settings.

The NCCA has produced guidelines to assist teachers and others in meeting the needs of students with general learning disabilities. The guidelines are designed for use in mainstream primary and special primary schools, post-primary schools, and other educational settings (see www.ncca.ie). In addition to these guidelines, the State Examinations Commission (SEC) operates the RACE scheme (Reasonable Accommodation in Certificate Examinations). Candidates with permanent or long-term conditions that will significantly impair their performance in State exams may apply to the SEC for reasonable accommodation(s) to be made to facilitate them taking the exams at post-primary level. A range of certification options are also available at post-primary, each designed to meet a variety of student needs.³²

Clearly, the ongoing development of an appropriate education linked to the curriculum for students with special educational needs requires continued attention, particularly at post-primary level when education becomes less child-centred and more subject-focused.

1.2 The Irish Post-Primary Education Context

The post-primary sector comprises secondary,³³ vocational,³⁴ community, and comprehensive schools³⁵. Post-primary education consists of three years of “junior cycle” followed by two or three years of “senior cycle” (summarised in Table 1). The Junior Certificate Programme for students aged 12 to 15 provides a core curriculum together with a series of optional subjects. It typically culminates in a Junior Certificate Examination. Importantly, in the context of students who might not otherwise complete the junior cycle and have difficulty learning (whether they have special educational needs or not), there is also the Junior Certificate Schools’ Programme. This provides a curriculum framework in the form of a single unified programme for students aged 12 to 15. This period culminates in a student profile recording achievements and might include subjects taken at Junior Certificate Examination level.

32 In Ireland, post-primary pupils have alternative certification options at junior cycle – Junior Certificate and Junior Certificate School Programme (JCSP) – and at senior cycle – Leaving Certificate (Established) (LC), Leaving Certificate Applied (LCA) and Leaving Certificate Vocational Programme (LCVP).

33 Secondary schools are privately owned and managed. The trustees of most of these schools are religious communities or boards of governors.

34 Vocational schools (including some community colleges and comprehensive schools) are administered by vocational education committees.

35 Community and comprehensive schools are managed by boards of management of differing compositions.

Table 1: Summary of junior and senior cycle structure

Cycle, student age range and years	Assessment and examination pathways
Junior Cycle (12-15 years) <ul style="list-style-type: none"> • First year • Second year • Third year 	Junior Certificate Programme or Junior Certificate Schools' Programme (JCSP), Further Education and Training Awards Council (FETAC)* Level 3 National Qualifications Framework (NFQ)
Senior cycle (16-19 years) <ul style="list-style-type: none"> • Transition year (<i>optional or compulsory, depending on school policy</i>) • Fifth year • Sixth year 	Leaving Certificate Established (LCE), Leaving Certificate Vocational Programme (LCVP), or Leaving Certificate Applied (LCA), FETAC Levels 4 and 5 on NFQ

* The Further Education and Training Awards Council (FETAC) is the statutory awarding body for further education and training in Ireland. FETAC makes quality assured awards that are part of the National Framework of Qualifications (NFQ) from Levels 1-6. (<http://www.fetac.ie>).

The two- or three-year senior cycle (with optional transition year in the fourth year) aims to encourage students to continue in full-time education beyond compulsory schooling by providing them with a range of courses suited to their abilities, aptitudes, and interests. Three programmes are centrally and nationally assessed by final examinations (the traditional Leaving Certificate Established, the Leaving Certificate Vocational, and the Leaving Certificate Applied) and involve ongoing assessment, particularly in the latter programme. The Leaving Certificate (Established) (LCE), the Leaving Certificate Applied (LCA) and the Leaving Certificate Vocational Programme (LCVP) all last two years. The LCE aims to provide a broad, balanced education while offering some specialisation towards a particular career option. Students must study at least five subjects, one of which is Irish. Syllabuses are available in 31 subjects. Most senior cycle students choose the LCE, which is taken in almost all schools and by an annual cohort of around 55,000 students. The LCVP is designed to enhance the vocational dimension of the LCE and is more focused on self-directed learning, innovation and enterprise. Participants are encouraged to develop skills and competencies relevant to academic and vocational training. While not specifically for those with special educational needs, the LCA targets students wishing to follow a practical programme with a strong vocational emphasis. It is student-centred and tries to prepare participants for adult and working life.

In the past decade, the National Council for Curriculum and Assessment (NCCA) has conducted specific reviews of junior and senior cycle curricula. Concurrently, policymakers have focused on a significant review and reformulation of syllabus documents at post-primary level³⁶. They have also focused on developing overarching policy directions for reforming the senior cycle phase of post-primary education. They aim to provide teaching and learning experiences in line with Ireland's move toward a knowledge society (Looney & Klenowski, 2008).

36 Developments in reforming post-primary mathematics have been accorded high priority. Following the NCCA review of mathematics in 2005-06, Project Maths has since been introduced to re-culture and re-structure mathematics curriculum and assessment at second level (see Conway & Sloane, 2006; Looney & Klenowski, 2008).

These reviews have generated interest in improving curricular access for all post-primary students (Looney & Klenowski, 2008), and have highlighted the need for greater coherence across the post-primary curriculum. Key conclusions of the NCCA reviews to date are:

- Junior cycle: concerns persist that student needs (mainstream and in special schools) are not being met, as evidenced by students leaving school before completing junior cycle or not progressing to senior cycle (NCCA, 2004b)
- Senior cycle: more flexible and skill-based experiences should be integrated into the curriculum for all students (NCCA, 2002).

Developments in the Irish post-primary curriculum are geared towards improving access by different types of learners with different educational goals (for instance academic, vocational). The ways in which students with special educational needs are catered for (or not) within this context are summarised in the following sections.

Historically, Ireland's post-primary curriculum has been dominated by the high-stakes Leaving Certificate examination (Gleeson, 1998). In the past 20 years, as the school-society relationship is being understood in a new way, there have been significant debates about the curricular intentions of the two cycles and the students' overall post-primary curriculum experiences (Looney & Klenowski, 2008).

1.3 Review of Junior Cycle

The NCCA has been reviewing whether the aims and principles originally set out for the Junior Certificate programme have been realised in its implementation. Among the issues identified in the review were: the extent to which students encountered an appropriate and relevant curriculum; the impact on the curriculum of the assessment approaches used; the actual level of curriculum overlap and overload across subjects; and the programme's manageability at school level in terms of time allocation and subject choices. In response to these issues the NCCA undertook initiatives including: rebalancing the perceived overload and repetition across syllabi; an assessment for learning initiative focused on enhancing students' engagement in their learning; and using assessment as a tool to improve and support learning (Black & William, 1998).

In June 2009, the then Minister for Education and Science, Batt O'Keeffe, spoke to the NCCA's council and "reiterated the need to address" the challenges associated with the junior cycle. He directed the NCCA to:

- review international practice in lower secondary education
- examine what areas of the curriculum should be prioritised
- assess the nature and form of assessment that would be most suitable for students at that stage of their development
- address the issue of overload, breadth and balance in the curriculum and to make time for active learning³⁷.

37 Text of the Minister's speech available at: http://www.ncca.ie/en/About_Us/Council/Minister_meets_Council_Members/Ministers_speech.pdf

The NCCA commissioned a major longitudinal study that focused on students' experience during the junior cycle following them from their transition into the post-primary sector until their completion. The study³⁸ involved more than 900 students in 12 schools and was undertaken by the Economic and Social Research Institute (ESRI). Drawing on the longitudinal data as well as the ongoing consultation processes via subject and cycle-level committees (primary, junior cycle and senior cycle committees), NCCA publications on junior cycle reform have consistently emphasised the importance of a broad curricular experience (NCCA, 2004a; NCCA, 2010). For example, the junior cycle is organised around eight areas of experience for all students that build on the six in the 1999 Revised Primary School Curriculum:

1. language, literature and communication
2. mathematical studies and applications
3. science and technology
4. social, political and environmental education
5. arts education
6. physical education
7. religious and moral education
8. guidance, counselling and pastoral care.

Furthermore, consistent with the emergence of key skills as a way of understanding the ultimate benefits of post-primary education, the NCCA noted eight key skills as part of the junior cycle curriculum:

1. communication and literacy skills
2. numeracy skills
3. manipulative skills
4. information technology skills
5. thinking and learning skills
6. problem-solving skills
7. personal and interpersonal skills
8. social skills.

The NCCA undertakes continual reviews of junior cycle and is working towards developing an agreed framework for the junior cycle (NCCA, 2010).

1.4 Review of Senior Cycle

Senior cycle review and consultation have emphasised the importance of moving towards new and more integrated views of learning and skills development, with

³⁸ See: http://www.ncca.ie/en/Curriculum_and_Assessment/Post-Primary_Education/Junior_Cycle/Research_on_students%27_experiences/ESRI_research_into_students%E2%80%99_experiences_in_junior_cycle.html

learning outcomes in addition to subject syllabi outcomes (NCCA, 1999; 2002; 2005; 2009). In 2002, following consultation, the NCCA in Directions for Development of the Senior Cycle (NCCA, 2002) identified four issues central to the development of senior cycle:

- assessment, certification, qualifications
- curriculum development
- programme requirements
- equality, access, lifelong learning (NCCA, 2002: p9).

The report also identified four key future directions:

- new school cultures
- restructured learning experiences
- rebalancing the curriculum
- different assessment arrangements (NCCA, 2002).

Subsequently, Le Métais's (2003) NCCA-commissioned review of international trends in upper secondary education focused on three key areas for development: a more flexible curriculum; a better balance between knowledge and skills; and more inclusive assessment as part of the certification process. In emphasising these three directions in its 2002 consultation document on the senior cycle, the NCCA drew attention to long-perceived weaknesses of the post-primary system – including junior and senior cycles. These were the lack of flexibility and breadth in the curriculum, especially for students with special educational needs; an over-emphasis on knowledge over skills; and a failure of assessment and certification to reflect adequately the diverse purposes of curricula, leading to limitations in the number of assessment modes and components used (NCCA, 2002).

Central to this new vision were key skills (Looney & Klenowski, 2008). The five key skills are: information processing; communicating; being personally effective; working with others; and creative and critical thinking. During 2006-9, these changes involved four areas of NCCA work: (i) reviews of existing subjects, including Irish, mathematics, English, modern languages; (ii) development of new subjects such as politics and society, and physical education; (iii) the development of short courses, including enterprise and psychology; and (iv) the development of curriculum frameworks. The NCCA called for a focus on how learners learn, embedding skills in subject areas, opening up the possibility of new modes of teaching and learning, and innovative modes of assessment (NCCA, 2009).

More recently, NCCA developmental work on the use of flexible learning profiles is being undertaken with a small number of schools. Flexible learning profile schools offer access to a range of qualifications. At one, fifth year LCA students can access a choice of FETAC awards such as "Customer Services" and sixth year LCA students are also taking a number of FETAC awards. In 2010-11, the school planned to open up further flexibility within senior cycle by incorporating mathematics and English, subjects previously available as part of the Leaving Certificate (Established) programme, into the LCA

programme. To expand the curriculum at senior cycle, the following FETAC modules are being introduced as options to all fifth year students (both established LC and LCA) (i) information technology skills Level 4; (ii) computer applications Level 4; (iii) health and fitness Level 4; (iv) cultural studies Level 4. These modules were selected as a response to student consultation and also based on what was identified as ways of enhancing senior cycle provision. Module choice will change and broaden as the need arises (NCCA, 2010: p56).

This work aims to explore how the redesign of students' curriculum experience through combinations of conventional subjects, short courses and transition units is linked to appropriate assessment. The evolution of conventional subjects, short courses, and transition units is being undertaken in the context of efforts to reframe the long-standing divide between academic and vocational (typically practical) subjects. In tandem with an international trend, the shift has been towards combined academic and vocational emphases within options and pathways. For example, the NCCA's (2005) proposal to make LCVP vocational modules available to all students as either short courses or transition units shows the intention to provide a better balance in the so-called "academic and vocational divide" at post-primary level.

The National Framework of Qualifications allows for levels and standards of different qualifications to be compared in a consistent manner, as well as accurately providing comparison with international qualifications. Qualifications are provided by the Further Education and Training Awards Council (FETAC), Higher Education and Training Awards Council (HETAC), the State Examinations Committee (SEC), the Institutes of Technology, and a range of universities. The levels at which they make awards, from basic secondary education to doctorates, are outlined in Table 2 below: (Department of Education & Science, 2007).

Table 2: Secondary Education Qualification Levels (reproduced from Department of Education and Science, 2007; Institutes of Technology, 2011³⁹)

Level	Example	FETAC	HETAC	SEC	Institutes of Technology	Universities
1		x				
2		x				
3	Junior Certificate	x		X		
4	Leaving Certificate	x		X		
5	Leaving Certificate	x		X		
6	Higher or Advanced Certificate	x	x		x	
7	Bachelors Degree		x		x	x
8	Honours Bachelors Degree		x		x	x
9	Masters Degree		x		x	x
10	Doctoral Degree		x		x	x

39 See the Institutes of Technology Ireland website for more information on qualifications offered: <http://www.ioti.ie/national-framework-of-qualifications>

1.5 The Irish Special Educational Needs Context

Over the past 20 years, there has been increasing recognition that education should prepare all students for full participation in cultural, social and economic life and to help them reach the full range of their potential, based on equity of access, participation and benefit for all in accordance with their needs and abilities (for instance *Charting our education future*, the 1995 White Paper on Education). The Education Act (1998 Part II 9 (a)) established in legislation that schools must “ensure that the educational needs of all students, including those with a disability or other special educational needs, are identified and provided for”, and the-then Minister for Education, Micheál Martin, introduced the concept of automatic entitlement to support children with special educational needs in a Government circular that year⁴⁰. There was widespread recognition in the 1990s that curriculum provision and assessment might need to be changed to meet the needs of all students, especially those with special educational needs (the 1994 *Report on the National Education Convention* emphasised this point)⁴¹.

The Special Education Review Committee (SERC) Report, 1993, recommended a continuum of education provision for students with special educational needs with as much integration as possible to maximise the number of such students who receive an appropriate education in ordinary schools. This report defined this group as having disabilities or circumstances that prevent or hinder them from benefiting adequately from the education normally provided for pupils the same age, or for whom the education generally provided is not sufficiently challenging (Department of Education, 1993). Building on this, the Education for Persons with Special Educational Needs (EPSEN) Act was enacted in Ireland in 2004. It redefined what was meant by special educational needs and established systems for providing appropriate and inclusive education for these students. It also created the National Council for Special Education (NCSE). The Act’s purpose as relevant to this report is set out in this excerpt from the Act’s preamble:

... to make further provision, having regard to the common good and in a manner that is informed by best international practice, for the education of people with special educational needs, to provide that the education of people with such needs shall, wherever possible, take place in an inclusive environment with those who do not have such needs, to provide that people with special educational needs shall have the same right to avail of, and benefit from, appropriate education as do their peers who do not have such needs, to assist children with special educational needs to leave school with the skills necessary to participate, to the level of their capacity in an inclusive way in the social and economic activities of society and to live independent and fulfilled lives ...

Three aspects of the Act’s purpose are particularly relevant as background to this report:

1. advocacy of provision that is “informed by best international practice” (section 20)

40 Department of Education and Science. Special education circular SP ED 02/05. Dublin: Department of Education and Science.

41 The website of the Standing Conference on Teacher Education North and South (see Austin and Patterson, 2003) provides a useful source of publications on special educational needs in Ireland (www.scotens.org).

2. emphasis on the right of children with special educational needs to attend mainstream schools with appropriate support (sections 2, 9, 20)
3. establishment of the NCSE to improve the delivery of education services to students with special educational needs (sections 19-34).

The EPSEN implementation report (NCSE, 2006) estimated the overall prevalence of combined special educational needs categories within the education system at almost 18 per cent. According to the NCSE (2006: p72), prevalence of different types of special educational needs was approximately:

1. 8 per cent of students with mental health difficulties (including emotional and behavioural disorders, mental illness and psychological disturbance)
2. 6 per cent with specific learning disabilities (including dyslexia, dyscalculia)
3. 2 per cent with intellectual/general learning disabilities (1.5 per cent mild; 0.3 per cent moderate, 0.1 per cent severe, 0.02 per cent profound)
4. 1 per cent with physical and sensory disabilities (in particular speech and language disorder, cerebral palsy)
5. 0.5 per cent with autistic spectrum disorders.

The NCSE has identified issues and challenges that may affect the implementation of the EPSEN Act. These include: concerns that relatively few children with special educational needs sit State examinations and achieve certified outcomes from the education system; that many children in this group leave formal education without the skills to participate in economic, cultural and social activity or to live fulfilled lives independently in the community; and that educational outcomes for these children are not systematically reported or tracked (NCSE, 2006: p94).

Griffin and Shevlin note the assumption that many of these children leave formal education without the skills to participate in economic, cultural, and social activity, or to be fulfilled and live independently in the community (Griffin & Shevlin, 2007), although data on these outcomes are very sparse (NCSE 2006: p107). As educational outcomes for this cohort are not systematically reported or tracked in Ireland, exact figures for the scale of special educational needs-related attrition from the education system have not been well documented (NCSE, 2006: p94).

Specifically in relation to students' transition through the education system, and of direct relevance to special educational needs, the NCCA noted that consultations on the curriculum framework for the junior cycle, with particular reference to the range of subjects required of students, involving a national survey of principals, bilateral meetings with education partners and international comparisons had raised concerns "centred [...] around mainstream students and students from special schools who failed to transfer from primary to post-primary school, those who left school before completing junior cycle and those who did not progress to senior cycle" (NCCA, 2004b, p9). These concerns echoed the long-standing position (emphasised in National Education Convention discussions in the 1990s [Coolahan, 1994]) that the post-primary curriculum was insufficiently flexible to meet the needs of all learners - but especially those with special educational needs.

In particular, there is a recognition that junior cycle curriculum and assessment-provision is not meeting the needs of students with mild and moderate learning disabilities. For example, responses to NCCA's publication in 2007 of *Guidelines for Teachers of Students with Mild General Learning Disabilities* (NCCA, 2009: p6) recognised that a group of students existed who even with teacher support using the most sophisticated approaches to differentiation would never access the mainstream junior cycle curriculum. Some comments went further, suggesting that the mainstream curriculum was not adapted to this group who required "concerted support in personal, social and vocational development".

Meeting the diverse educational needs of these students has become an increasing priority. Meegan and MacPhail (2006) commented, however, that the general acceptance of the right to schooling of individuals with disabilities had not been matched by a right to full educational access to all aspects of the curriculum.

An inclusive curriculum must consider the different abilities and needs of all students, and be adapted to be accessible and flexible so that those diverse needs are met. Using one curriculum means some students will inevitably fall behind while others will find work too easy. A previous NCSE report on inclusion concluded that useful strategies included flexible timeframes for work completion, differentiation of tasks, flexibility for teachers, time for additional support, emphasis on vocational as well as academic goals and flexible teaching-learning methodologies. Access to the curriculum involves how students with special educational needs interact with their peers, or how the classroom is structured. It is not just about including a student in a mainstream classroom (Winter & O'Raw, 2010).

The move toward more inclusive schooling has had an impact not only on schools but also on teacher education across the continuum (see Butler & Shevlin, 2001; Kearns & Shevlin, 2005a; Kearns & Shevlin 2005b; Kearns & Shevlin, 2006; Meegan & MacPhail, 2006; Conway *et al*, 2009). The Teaching Council of Ireland defines the continuum of teacher education as the formal and informal educational and developmental activities in which teachers engage throughout their teaching career; this includes initial teacher education, induction, in-career development, innovation, integration and improvement.⁴²

The task force reports on dyslexia (Government of Ireland, 2001a) and autism (Government of Ireland, 2001b) provide examples of the challenges still facing schools in relation to helping students with special educational needs access the mainstream curriculum. These challenges can be exacerbated when a school needs to accommodate different types of such needs. Moreover, the change from student- and learning-centred approaches in primary school to a subject-centred post-primary curriculum is of particular concern as this requires planning and resources to minimise difficulties (SESS, 2009).

As noted by the National Council for Special Education (NCSE), a key dilemma is how to:

... describe and develop an education for those with SEN that is strongly linked to the curriculum, which produces meaningful outcomes and which delivers

42 See The Teaching Council (2011). Policy on the Continuum of Teacher Education. www.teachingcouncil.ie/_fileupload/Teacher%20Education/FINAL%20TC_Policy_Paper_SP.pdf

benefits to those with SEN which are not separate from, nor devalued in any way relative to those available to their peers (NCSE 2006: p23).

1.5.1 Access to exams and certification

As noted in Section 1.1 of the report, the State Examinations Commission (SEC) operates the Reasonable Accommodation in Certificate Examinations (RACE) scheme. Candidates with permanent or long-term conditions that will significantly impair their performance in State post-primary exams may apply to the SEC for reasonable accommodation(s) to facilitate them taking the exams. Despite these curricular options, there is still a group of students for whom current post-primary provision does not meet their curriculum or assessment needs, as identified by participants in an NCCA student consultation on the development of flexible learning profiles (NCCA, 2009b). A NCCA report (2010) raised the question of whether new or related junior cycle qualifications at Level 1 and 2 of the National Framework of Qualifications (NFQ) should be introduced to meet the needs of specific groups of learners with special educational needs.

1.5.2 Additional support for students with special educational needs

Some additional supports (resource teaching hours and special needs assistants) for students with special educational needs are allocated to post-primary schools by the NCSE through its network of locally-based special educational needs organisers (SENOs). Schools can apply to the NCSE for additional supports. Procedures for allocating additional resource teaching hours and SNA posts are set out in circulars issued by the Department of Education and Skills (DES) and the NCSE. SENOs provide and co-ordinate support for the students and provide the link between parent and school to ensure that the child is appropriately supported (DES [Science], 2007, p12).

The Special Education Support Service (SESS) co-ordinates, develops and delivers a range of professional development initiatives and support structures for school personnel working with students with special educational needs in mainstream primary and post-primary schools, special schools and special classes⁴³. This may include in-school support to address particular needs, individual or group professional development courses for teachers, and telephone or email support (DES [Science], 2007, p87).

All post-primary schools have been advised to examine their curriculum content, approaches to learning and teaching, and provision of programmes so that students with special educational needs can access the curriculum within mainstream education (DES [Science], 2007). Guidance issued in 2007 from the then Department of Education and Science was that students with special educational needs should be included as much as possible in mainstream classes and withdrawn for individual or small-group teaching only when it is clearly in their interests or where appropriate education for them or other students cannot be provided in the mainstream class. Successful inclusion requires collaboration between mainstream teachers and specialist staff such as

43 www.sess.ie/about-sess/about-sess

resource teachers, guidance counsellors, home-school-community liaison co-ordinators and learning support teachers (DES [Science], 2007).

1.6 The International Context

The UN Convention on the Rights of Persons with Disabilities, adopted in December 2006, represents a fundamental basis on which member-states will build their political commitments to a fair and inclusive society. More specifically, in Article 24 it highlights the importance of an inclusive education system at all levels, with particular attention to the provision of reasonable accommodation and support to ensure effective participation in the general education system. This means member-states are obliged to ensure “an inclusive education system at all levels and life-long learning” and provide access to “an inclusive, quality and free primary education and secondary education” (UN, 2006, art. 24 1.1). Responsibilities also include commitment to provide equal access to general tertiary education, vocational training, adult education, and lifelong learning. The EU ratified the UN convention on December 23rd, 2010⁴⁴.

Corresponding with convention commitments, both the European Charter for Fundamental Rights (EU, 2000) and the Council of Europe’s Disability Action Plan for 2006-2015 (Council of Europe, 2006) also aim to promote full and equal inclusion of all citizens in the education system. The EU itself, however, has limited competence in the area of education and each member-state has responsibility for its own education system and content of teaching.

In line with the previous commitments, the EU’s tendency is to develop policies towards inclusion of students with special educational needs into mainstream schools. This is complemented by various degrees of support for teachers such as supplementary staff, materials, in-service training and equipment (European Agency for Development in Special Needs Education, EADSNE, 2003).

1.7 Aims of This Report

Broadly, this report aims to contribute to the evidence base (“best international practice”) on post-primary curriculum and curriculum access issues to inform the research and policy advice needs of the NCSE. The NCSE has commissioned a series of research projects on special educational needs and inclusion to aid its improvement agenda. This particular report fits within that remit by examining curriculum issues at the post-primary level. More specifically, the report aims to:

- identify priority themes within curriculum and curriculum access at post-primary level for students with special educational needs relevant to the Irish context
- review the international literature on these priority themes for students with special educational needs at post-primary level

44 <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/4>

- enhance the NCSE's understanding of curriculum issues at this level to assist it in planning further empirical research in this area, if necessary, and to formulate policy advice on the matter to the Minister.

The focus on curriculum access is driven by the recognised challenges in developing and implementing an education for students with special educational needs that is strongly linked to the curriculum (NCSE, 2006). For example, Shevlin *et al* (2002) found these students often experience exclusion from full curricular access in post-primary schools. Other research has indicated that teacher training in specific inclusion skills and strategies might help to overcome access problems in Irish special education (Moran, 2007; Moran & Abbott, 2002). A review of the literature will help to identify possible approaches to improving access to the curriculum and barriers to the effectiveness of such approaches. Concerns about how this particular group of students experience the more subject-centred post-primary curriculum compared with the student-centred learning of primary education also fuel this report's focus on post-primary education.

Given the need to establish the evidence base on curriculum and access to curriculum in post-primary settings, the project has two components:

1. *Irish and Northern Irish literature review (Section 2 of the report)*. A traditional narrative review (that is, a review that does not use systematic methods for identifying and reviewing the evidence) on some issues raised in the policy and legislative context section. The review focuses particularly on recent trends in the Irish context and on gaps in the literature.
2. *International literature review (Section 3)*. A review of the international literature using systematic searching and reviewing principles, focusing on the issues and gaps which seemed to emerge from the review of the Irish literature.

2 Irish Literature Review

This section of the report describes the aims, methods, results, and conclusions of a review of the Irish literature on post-primary access to the curriculum by students with special educational needs.

2.1 Research Aims

Our aim when undertaking this review was to identify key trends in the Irish literature on curriculum and accessing the curriculum for students with special educational needs in post-primary settings. The intention was to use those key trends in the evidence base to inform a more thorough, systematic review of the international research literature.

2.2 Methods

Given the stated research aim to explore trends and gaps in the Irish literature, a focus on the breadth of the evidence was more important than going into detail on any one research question. With such a broad remit, systematic methods of searching the evidence are not the most useful as they require well-defined, measurable terms. As such, this component of the report is based on a non-systematic, narrative review used to locate and summarise research emerging Ireland (including Northern Ireland).

Narrative reviews are the simplest form of research synthesis⁴⁵. They are most useful when the requirement is for a selecting a limited number of key studies that can provide an overview on a particular topic. For this narrative review, the Matrix review team collected data from the abstracts of studies and summarised findings quickly with no statistical analysis or objective evaluation of the quality of the study itself. For that reason, the reporting format across Sections 2 and 3 looks qualitatively different. Specifically, findings from the narrative review do not include any ratings of quality with regard to the quality of methods used in reported research.

The project team decided to include Northern Ireland in the Irish review for two reasons: (a) because it was anticipated that the yield of relevant evidence from Ireland alone would be low; and (b) because similarities between cultural and educational features would allow for transferability of findings between Ireland and Northern Ireland. The education system in Northern Ireland has clear characteristics that differentiate it from the system in other parts of the UK and, in some respects, make it more similar to the system in the Irish Republic. These similarities in the teaching of students with special educational needs were reflected in a recent report commissioned by the Standing Conference on Teacher Education North and South (SCoTENS), *Professional Development for Post-Primary Special Educational Needs (SEN) Teachers in Northern Ireland and the Republic of Ireland* (2009)⁴⁶.

A search of the electronic databases for the Irish literature review was conducted on March 22nd, 2010, by the Information Retrieval Unit at the King's College London.

45 http://www.nationalschool.gov.uk/policyhub/downloads/Chap_2_Magenta_bkgd.pdf

46 www.qub.ac.uk/schools/SchoolofEducation/Staff/Academic/filestore/Fileupload,167275,en.pdf

The review team searched four key databases:

- British Education Index (BEI)
- Educational Resources Information Center (ERIC)
- Applied Social Sciences Index and Abstracts (ASSIA)
- Social Policy and Practice (which includes ChildData, Social Care Online, Planex and Ubadoc).

In addition to searching databases, we also carried out internet searches for additional studies cited by included articles (citation chasing), and the table of contents of REACH, the journal of special needs education in Ireland (see <http://www.iatse.ie/Reach.aspx>). Information on the databases used can be found in Appendix A. The detailed search strategy for the electronic databases is presented in Appendix B. Internet searching was conducted using Google, Google Scholar, SIGLE (System for Information on Grey Literature in Europe), and specific websites (www.ncca.ie, www.education.ie, www.sess.ie). Details of the relevant studies and reports identified from these sources are cited in the text of this report and in the reference list.

Studies and reports were included in the review if they referred to curriculum development, provision, or access in Ireland; related to students with special educational needs in post-primary settings; and were published in the past 20 years (see Appendix B for a list of the search terms used). This was further narrowed to studies that referred to how access to the curriculum was facilitated in Irish contexts, and/or dealt with the themes of teaching practices, curricular options, and/or assessment or certification.

2.3 Findings from the Review of the Irish Literature

Thirty-two studies or reports were included in the review of Irish literature, 20 relevant to Ireland (research carried out in Ireland or the report written from an Irish perspective), eleven to Northern Ireland and one to both. Analysis of the findings from these studies was grouped into seven key themes:

1. structure
2. differentiation
3. flexibility and individual learning plans (ILPs)
4. pathways
5. assessment
6. staff
7. transitions.

Details of how each citation was categorised against these seven themes are summarised in Table 3. They were then used to inform the international literature review as described in Section 3 of the report. Although similar enough to merit being included in the same review process, the differences in the education systems in general and for pupils with special educational needs in particular mean that the studies relevant to Ireland (Section 2.3.1) and Northern Ireland (Section 2.3.2) have been reported separately.

Table 3: The seven themes identified in each study included in the review of Irish (ROI) and Northern Irish (NI) literature

Citation	Country	Type of SEN	Theme						
			Structure	Differentiation	Flexibility and ILPs	Pathways	Assessment	Staff	Transition
Caul <i>et al</i> (2001)	ROI + NI	Behavioural	X						
Douglas <i>et al</i> (2009)	ROI + international	Visual impairment	X						
Marshark & Spencer (2009)	ROI + International	Hearing impairment	X						
Parsons <i>et al</i> (2009)	ROI + International	Autism	X						
Banks <i>et al</i> (2010)	ROI	General					X		
Daly (2001)	ROI	Physical disabilities				X			
Daly <i>et al</i> (2007)	ROI	Physical disabilities						X	X
DES (Science) (2007)	ROI	Physical disabilities				X	X		X
Kearns & Shevlin (2006)	ROI	General						X	
Lynch (2007)	ROI	General	X	X					
Maunsell (2007)	ROI	General							X
NCCA (2007)	ROI	General	X						
NCCA (2010)	ROI	General		X					
NCSE (2006)	ROI	General		X					
Nugent (2007)	ROI	Dyslexia	X						
Ring & Travers (2005)	ROI	Learning difficulties	X						
SESS (2009)	ROI	General							X
Shevlin <i>et al</i> (2002)	ROI	Physical disabilities	X						
Smyth (2009)	ROI	General							X
Smyth <i>et al</i> 2006	ROI	General		X					
Ware <i>et al</i> (2009)	ROI	General							X
Long <i>et al</i> (2007)	NI + England	Dyslexia			X			X	
Abbott (2006)	NI	General							X
Abbott (2007)	NI	General						X	
Education & Training Inspectorate (2006)	NI	General						X	
Gray (2009)	NI	Visual impairment	X						
Harland (2005)	NI	Low attainment	X						
Lambe & Bones (2008)	NI	General						X	
Lambe (2007)	NI	General						X	
Moran & Abbott (2002)	NI	Learning difficulties						X	
Moran (2007)	NI	General						X	
NI Education & Training Inspectorate (2002)	NI	General	X					X	
Total 32			12	4	1	2	2	10	7

2.3.1 Summary of evidence of relevance to Ireland

2.3.1.1 Structure

Three NCSE reports have discussed issues relating to educational provision for students with different types of special educational needs (Douglas *et al*, 2009; Marschark & Spencer, 2009; Parsons *et al*, 2009). All three were reviews of the international literature summarised from the perspective of the Irish context, and are also reported in the section of this report on the international literature. They highlighted the need to make curriculum adjustments for students with special educational needs such as use of additional support from staff, use of specialist materials, and the need to have a flexible approach to where and how students are educated.

Douglas *et al* (2009), reviewing the international literature on best practice models and outcomes in the education of blind and visually impaired children, concluded that, in the Irish setting, more effective links should be established between health and education services for identifying and supporting students with visual impairment. Greater provision of additional materials and equipment should be sought from providers such as the National Centre for Technology in Education (NCTE), St Joseph's Centre for the Visually Impaired, and the National Council for the Blind of Ireland (NCBI). Staff training is important and, again, resources such as those offered by St Joseph's Centre for the Visually Impaired were identified as helpful.

Marschark and Spencer (2009) concluded from their international literature review on best practice models and outcomes for deaf and hard-of-hearing children, that making significant changes to the Irish education system to support these students would require collaborative efforts across all stakeholders including Government agencies. The authors made the following recommendations for post-primary students with hearing impairment in Ireland:

- a range of educational settings should be offered to suit the disparate needs of students with hearing impairment, from separate schools or programmes at one extreme, to fully inclusive classrooms, with greatest benefit likely from offering a mixture of settings
- age-appropriate education should be offered in each post-primary setting for hard-of-hearing students, who should be allowed to remain in appropriate schools beyond age 18 if necessary to make up for earlier educational lags
- particular attention should be given to hard-of-hearing students as their partial hearing can mean teachers do not make extra provision for them; that IEPs should be used to ensure that students' needs are being accommodated and their parents fully involved
- additional support should be used to ensure full access to the curriculum, including sign language interpreters, oral interpreters, real-time text, note takers, audiological technology such as hearing loops; and that teachers should have access to appropriate training on how to help students access the curriculum.

Parsons *et al* (2009) reviewed the international literature on best practice for educational provision for students with autistic spectrum disorders and reported

their findings with reference to their relevance to the Irish context. They found little evidence on curriculum and access to curriculum for these students. They concluded that all students with autism spectrum disorders are likely to benefit from curriculum modifications and adjustments to the physical and sensory environment. The authors concluded that in particular there could be advantages to involving parents in addressing the social skills curriculum, although they found no clear evidence on what this curriculum should offer. Despite notable increases in specialist autism provision in Ireland within mainstream and specialist schools, the authors commented that more research of relevance to the Irish context was needed on the effectiveness of placement in autism-specific classes and units. They wanted better data on the impact of specialist classes in terms of the curriculum offered and which children with autism spectrum disorders were most likely to benefit from them (Parsons *et al* 2009).

Caul *et al* (2001) reviewed the experience of two schools in Ireland and Northern Ireland, as well as three in Spain, Italy and Sweden, as they tried to establish a secure and safe environment for learning, with a focus on managing potentially disruptive students. The two Irish schools adopted a supportive relationship model, where successful management of violent pupils was associated with ensuring that students saw themselves as valuable with a contribution to make to their own education. Disruptive pupils were given an adapted curriculum that they would perceive as having greater relevance, such as increased participation in sporting, artistic, cultural and other practical activities. The Junior Certificate Schools Programme, Leaving Certificate Applied and Post-Leaving Certificate programmes were introduced to meet the educational needs of less academic students. Teachers, parents and students valued the approaches taken which they considered had had a positive effect on behaviour.

Other studies have identified challenges to accessing the curriculum by students with a range of problems leading to special educational needs. In Shevlin *et al*'s (2002) qualitative study, 16 young adults with physical disabilities, dyslexia and hearing impairment, who had left post-primary education in the previous two to three years, reported that they had often experienced exclusion from full curricular access. This was particularly the case for subjects requiring laboratory work or physical activity, such as physical education, home economics and science, and for extra-curricular activities. Although some former pupils reported that their schools had arranged for modifications such as lowering laboratory benches so those in wheelchairs could reach, others said their schools were less able or willing to make adaptations. Minor adaptations and co-operation with non-disabled students allowed some of those with special educational needs to participate in the curriculum, but others felt they had been relegated to a spectator role.

Ring and Travers (2005) identified the lack of specialist teaching materials as a "dilemma" in helping a student with severe learning difficulties to access the curriculum in rural Ireland, although this was based on a case study of one person.

The review identified no studies meeting the inclusion criteria that described how the curriculum was, or should be, designed and developed for post-primary students with special educational needs. In particular, no studies assessed what this group of students should learn, or compared one type of curriculum with another. Although several reports

described ways in which students with specific types of special educational needs might be helped to access the curriculum, such as being taught Braille or other visual aids (Douglas *et al*, 2009), or sign language (Marschark & Spencer, 2009), these reports included no evidence on how acquiring these additional skills should be balanced with time spent on accessing the rest of the curriculum.

In addition, we found no studies that reported on how to determine whether the mainstream curriculum meets the needs of particular subgroups of post-primary students with special educational needs, such as those with emotional or behavioural difficulties, or how or whether to adapt the curriculum for such students so that their needs are better met. There are, therefore, major gaps in the evidence on how curriculum should best be designed, developed and delivered, and whether it needs to be adapted for post-primary students with special educational needs in Ireland. Consequently, robust studies that synthesise what is already known about this and evaluate different methods and strategies for improving curriculum and access to it, would be extremely useful.

2.3.1.2 Differentiation

Differentiation is one approach to catering for the learning needs of students with the goal of enhancing every student's access to the curriculum. The NCCA (2007), as the body responsible for developing the curriculum in Ireland, defines differentiation as:

... the process of varying content, activities, teaching, learning, methods and resources to take into account the range of interests, needs and experience of individual students. Differentiation applies to all effective teaching but is particularly important for students with special educational needs (p8).

The NCCA (2007: p8) listed three main areas applicable to differentiation:

- content: variation in what is taught
- process: variation in the methods, materials, and activities used to give students opportunities to practise and learn the content
- product: variation in how students show what they have learned.

Differentiation can involve varying the following factors (NCCA, 2007: p9):

- the level or pace at which the curriculum is delivered, so students can work on a similar topic at a degree of complexity and rate of progress that reflects their previous achievement in that area
- presentation of the curriculum
- learning goals and targets for assessment
- the pathway taken through the curriculum, exposing students to different parts of the curriculum at different times of the year
- teaching style, including group work, peer tutoring, co-teaching (having more than one teacher in the classroom at the same time – usually one general and one special educational needs specialist teacher), and the presence of a teaching assistant

- equipment and materials used to deliver the curriculum, such as simplifying texts and using visual aids.

Although important, differentiation is just one strategic approach to curriculum delivery, which is itself just one of ten inclusion themes identified in an NCSE report (Winter & O'Raw, 2010). Examples of inclusive practice related to curriculum also included ensuring a mixed ability teaching approach and ensuring that all students can access the curriculum. Forms of differentiation most commonly used involve these adaptations being carried out by the teacher in the classroom. Other changes that can increase access to curriculum include offering a range of certification options to suit different abilities, and the use of a transition year (an optional fourth year between junior and senior cycle) to increase the opportunity for innovation within the post-primary context (Jeffers, 2002).

Table 4 summarises some key approaches to differentiation (NCCA, 2007). Although research and practice literature frequently cites differentiation as a key strategy, Lynch (2007) concluded there were not enough robust evaluations of differentiation strategies to determine beyond doubt the extent to which the impact on learning was positive.

Table 4: Strategies to implement differentiation (adapted from NCCA, 2007: p9)

Strategy	Description	Example
Level and pace	Students work on a similar topic at a level and pace that reflects their previous achievement in that area.	In a mathematics lesson about money, one group could work on concepts of addition and subtraction of money amounts, while another works on the recognition of coins.
Interest	The student's own interests are used to motivate and enhance the learning experience.	Draw on the student's favourite topics (for example, pop groups, television programmes) to illustrate concepts.
Access and response	Students access and respond to the same curricular content in ways that are modified to suit individual needs and competencies.	One group responds to a given picture by writing a descriptive story, while another describes the picture orally onto a tape, while another group re-creates the picture pictorially, or by using suitable software.
Structure	Some students take small steps of learning, while others learn in whole blocks of integrated curricular content.	Teacher may outline the objectives with four levels in mind: minimum, median (average), extension (additional), and optimum (highest level possible).
Sequence	Students access different parts of subject content at different times throughout the year.	Some students might need to cover certain content as a prerequisite for understanding, whereas other students might not need the same ordering of content.
Teaching style	Students experience various approaches and different styles of teaching and forms of response.	Alternative teaching/response styles include: didactic teaching approaches, class discussion, investigation, student presentation, research using the internet, the use of film/video.

Two strategies used to divide a class into different ability groups for differentiated teaching are streaming and banding. Compared with banding, where students are taught in different groups based on a subject-by-subject evaluation of their ability, streaming typically involves students being placed in one group for all subjects (DfEE,

1999). Students in lower ability streams, which include students with special educational needs, may be less challenged academically throughout their post-primary education and may become demoralised because they are in the lower stream, with a lower self-image, and spending less time on homework than students in higher streams (NCCA, 2010; Smyth *et al*, 2006).

2.3.1.3 Flexibility and IEPs

The reviews team found no work specific to this theme in the Irish literature. That does not mean these strategic approaches are not considered useful or important in the Irish context. Indeed, it may simply reflect the extent to which the research and practice communities consider them so entrenched or accepted that they are no longer worthy of detailed debate or evaluation.

2.3.1.4 Pathways

The review team found very little in the way of quantitative empirical analysis of different curricular pathways in Irish post-primary settings; most material we found did not go much beyond providing descriptive accounts of the pathways. (A notable exception, Banks *et al* [2010] is described in more detail below). A report from the Department of Education and Science, for example, provides a useful description of the assessment and certification options available in Ireland (DES [Science], 2007).

Daly *et al* (2007) recorded the experiences of students with physical disabilities in second level schools in Ireland. They interviewed 34 young people aged 13-35 with a primarily physical disability who had experience of mainstream education. The authors also interviewed eleven parents, 12 education professionals and nine professionals working in disability agencies; interviewees particularly valued being able to repeat a year if they had missed substantial amounts of school time through illness.

An earlier study by Daly (2001), however, suggested that any alternative curricular pathways might need to be legitimised as part of the certification programme if they were to have full impact. Daly's action research methods assessed the provision of a web-based alternative curriculum to address what he termed "niche" educational needs. He concluded that such a tool might be effective in improving some outcomes for students with special educational needs, but the "difficulty of achieving accreditation and certification for 'alternative' learning ... [led to] de-valuing of the activity" (p11).

Alternative curricular pathways have been introduced to Irish education to cater for a range of abilities. One is the Leaving Certificate Applied (LCA) programme, designed to be a distinct pre-vocational programme for senior cycle students. Its goal is to prepare them for transition from education into adult and working life. One mixed methods study (Banks *et al*, 2010) found pupils who participated in the LCA were more likely to have had low reading and mathematics ability on entry into post-primary education, and to have been in lower streamed classes during junior cycle. Pathways into the LCA included pupils who struggled with school work during junior cycle, those with behavioural problems at junior cycle, those who wished to enter the labour market on leaving school, those with special educational needs and learning difficulties, and those

who felt “misdirected” by the school into taking the programme. According to the report, all respondents with special educational needs were advised by teachers, principals or guidance counsellors to take the LCA rather than the LCE – even in a few cases where students might have preferred to take the LCE (Banks *et al*, 2010).

2.3.1.5 Assessment

Banks *et al*'s (2010) report on student experiences of the LCA programme indicated that twice as many students with special educational needs participated in it than the more general Leaving Certificate Established (LCE). Banks *et al* reported qualitative data suggesting that some schools used the LCA to cater for the needs of junior cycle students with learning difficulties. In 2005-6, 37 per cent of pupils taking the LCA failed to complete the course, compared with 11.7 per cent of pupils taking the LCE or LCVP. Further evidence is required to determine whether any systematic routing of students into LCA courses affects student outcomes and whether it still allows those with special educational needs to fully participate in inclusive education. However, it is difficult to find details of their participation levels in the different types of certification options (LCA, etc). Banks *et al* concluded that staying at school to complete the LCA programme conferred valuable labour market skills and enhanced the chances of securing employment. Unemployment rates for LCA completers were 14 per cent one year after leaving school, compared with 22 per cent for Junior Certificate leavers. The data related to a period of economic boom in Ireland, however. Logistic regression showed those who left school early or with an LCA qualification were more likely to experience unemployment compared with those who completed the LCE or LCVP. It is difficult to be sure how much of the difference is caused by the different curricular pathways and how much is caused by baseline differences in the pupils who choose those different pathways.

2.3.1.6 Staff

Daly *et al* (2007) interviewed 34 students with disabilities in second level schools in Ireland; they found the students valued support from SNAs or personal assistants, who acted as scribes, helped students maintain concentration in class, and assisted with personal care such as toileting. Flexibility in timing and teaching arrangements enabled students to take longer to get to different classrooms, and physical adaptations and special needs assistants offering one-to-one support were invaluable. However, several problems were identified by students. In one case, an SNA was not permitted to accompany the student to every class. In the student's view this was because the presence of the SNA, who (in this example) was not employed via the school, might have intimidated classroom teachers. Bullying by other students was widely reported by these students, although it was perceived as less of a problem than at primary level.

Special initial training for teachers is no longer favoured in Ireland (Kearns & Shevlin, 2006: p25). The B Ed programme in Ireland reported by Kearns and Shevlin (2006) had three main types of course structure: a single course or series of units on special educational needs and inclusion, delivered by specialists; a permeated or infused approach to teaching about special educational needs, which was either implicit or explicit; or combinations of these two approaches. Educators of teachers reported

difficulties with ensuring the quality and monitoring of permeated content. They said they would prefer a compulsory “standalone” course in special educational needs for all pre-service teachers.

2.3.1.7 Transition

A qualitative study interviewed five girls and three boys with special educational needs in sixth class at two single sex primary schools in Dublin. The children were asked about their hopes and fears around their transfer to second-level education (Maunsell *et al*, 2007). Five of the eight were most looking forward to doing new subjects, especially practical ones, and meeting new teachers. Four looked forward to making new friends. Only one student had positive feelings about moving around classes during the school day. The main fears reported were about harder work and bullying, but other fears included doing tests, having new teachers and moving from a single sex to a mixed school. Six of the students thought that visiting the post-primary school before starting there would be beneficial and a number (unreported) said they would welcome being visited by post-primary teachers at their primary school. Parents of these children were also concerned about the risk of bullying. Parents and students identified the need for good communication and co-ordination between primary and post-primary schools to prepare students for transition. Students suggested that this might be facilitated by a student liaison officer who would work in both schools and be a familiar person to support pupils in their new post-primary environment. Other strategies suggested included a mentoring programme in the post-primary school, and enhancing the level of partnership between schools and parents during the transition.

A key finding from the NCCA-commissioned longitudinal study on the experiences of students in the junior and senior cycles is that the transition from primary to post-primary schools is particularly challenging for about one in six students (Smyth, 2009). The Department of Education and Science (DES [Science], 2007) noted that students transferring to post-primary school face a range of challenges, including adjusting to a new building, working with their new teachers and classmates, coping with a greater number of subjects, being at school for a longer day, and often having more homework (p81).

Schools may also find the transition of students into post-primary schools to be challenging not least because special needs resources do not automatically transfer with the student. The Special Education Support Service (SESS, 2009) has developed a transition audit for post-primary schools to ensure that support and resources are in place for the student with special educational needs before the move occurs.

In Ireland, the evidence is unclear about the benefits of the optional transition year between junior and senior cycle. Daly *et al* (2007) found students with physical disabilities in second level schools in Ireland experienced the transition year as useful for making friends and engaging in extra-curricular activities. However, students were less positive about the perceived lack of co-ordinated support during this phase.

An NCSE report (Ware *et al*, 2009) concluded that Irish teachers and principals at mainstream and special schools had concerns about the informal, often ad hoc links

between the two types of schools. From qualitative evidence, it appears that some special school principals in particular were concerned about being called on to support staff at mainstream schools because of potential strains on the special school resources. Schools in Ireland might require more formalised links to alleviate the concerns of teachers and principals in special schools.

2.3.2 Summary of evidence from Northern Ireland

2.3.2.1 Structure

Harland *et al* (2005) tracked 3,000 young people in Northern Ireland from age eleven (in 1996) to age 18 to explore the impact of the whole curriculum as seen from the learner's perspective. The study was not focused specifically on students with special educational needs but reported some issues of particular relevance to low-attaining students. Pupils overall saw the curriculum as a means to academic achievement and a passport for entry to higher education and future employment. Throughout post-primary education, mathematics, English, information communications technology (ICT), health-related subjects, PE and careers education (from Year 10) were perceived as the most important parts of the curriculum by all students. The sciences and humanities were generally perceived as slightly less important areas, and the arts, RE and languages were considered the least useful. The extent to which the curriculum delivered vocational relevance was disputed by those who, on leaving school at 16 for work-related training and employment, felt ill-prepared. Throughout their post-primary experience, the most difficult parts of the curriculum for pupils included mathematics, sciences and languages. Pupils consistently found English slightly unmanageable in relation to the amount of homework and coursework. The practical and creative subjects were generally seen as the easiest areas. There was a sense of increasing difficulty year-on-year, and in Key Stage 4, mathematics, sciences, geography and the languages seemed markedly harder for pupils in secondary schools and for low attainers than at Key Stage 3⁴⁷.

The Northern Ireland Education and Training Inspectorate (2002) surveyed the provision for pupils with special educational needs in mainstream schools to assess how well they met the Education (Northern Ireland) Order of 1996 to devise strategies to meet students' special educational needs within mainstream and special education. Twenty post-primary and 40 primary schools were surveyed in 2001-2. The survey found almost half of students with statements of special educational needs were in mainstream education. All schools had a policy for such provision. This group of students was identified in multiple ways, including teacher observation, tests published by the National Foundation for Education Research, screening or standardised tests, and information passed to the school from primary schools.

All schools were found to have promoted a good relationship between teachers and pupils. The survey noted that 48 per cent of schools were rated good (the highest rating) at identifying pupils with special educational needs and 38 per cent were satisfactory, but 14 per cent were weak. Most (76 per cent) were rated good for their ethos on the

47 Pupils in the UK begin Key Stage 3 as they enter secondary education (aged 11), and Key Stage 4 in Year 10 (aged 15).

supportive, caring and positive atmosphere underpinning learning for pupils, and 19 per cent were satisfactory. Most were either good (43 per cent) or fair (38 per cent) at having adequate staffing and resources to support pupils with special educational needs, but the report considered there was room to improve on the time available for SENCOs to help them support pupils and liaise with other staff, and that the special needs budget should be more focused and not absorbed into the main school budget. The emphasis was strong on devising and implementing appropriate and effective arrangements for curriculum provision at key stages (KS) 3 and 4, and vocational programmes at KS4, with 43 per cent of schools rated good and 47 per cent satisfactory on this measure. More effective use of IEPs was another area for improvement. Teaching quality was good in 19 per cent of schools at KS3 and 33 per cent at KS4, and satisfactory at 67 per cent of schools at KS3 and 61 per cent at KS4, but better differentiation of teaching and worksheets was often needed. Most schools were rated good or satisfactory at ability to demonstrate evidence of improvement in pupils' self confidence, self-esteem, attendance and behaviour (71 per cent at KS3, 76 per cent at KS4). Although 68 per cent of schools were good or satisfactory at improving pupils' standards in literacy and numeracy at KS3, 25 per cent were weak and 7 per cent poor. At KS4, 8 per cent of schools were rated good, 58 per cent satisfactory, and 34 per cent weak at improving standards in literacy and numeracy at KS4. One-third were rated good for overall effectiveness of special educational needs provision and outcomes, 48 per cent were satisfactory and 19 per cent weak (ETI, 2002).

Gray (2009) conducted surveys on the inclusion of students with a visual impairment from all SENCOs working at schools in Northern Ireland with one or more students with visual impairment. About half the schools were post-primary and half primary. Gray also carried out a small number of interviews with SENCOs in mainstream primary and post-primary schools, also in Northern Ireland. Gray found some schools discouraged students with a visual impairment from studying certain subjects, such as physical education or technology, mainly due to problems accessing textbooks, or for health and safety reasons.

2.3.2.2 Differentiation

The review team did not find any literature from Northern Ireland covering this theme.

2.3.2.3 Flexibility and IEPs

Little research was found on curriculum flexibility and use of IEPs in Northern Ireland. The one study identified related to dyslexia in Northern Ireland and England.

Dyslexia typically affects reading, writing, spelling or manipulation of numbers to an extent not typical of the student's performance in other areas of the curriculum. It is defined as a specific learning difficulty by the Code of Practice on the Identification and Assessment of Special Educational Needs (DENI, 1998). Long *et al* (2007) reported on a boy in Northern Ireland with dyslexia who developed disruptive behaviour and low attainment in reading and spelling after his transfer to secondary school. After consultation with the school psychologist, the school implemented strategies to circumvent his difficulties by, for example, not asking him to read aloud in class; to teach

him strategies to enable and empower him such as new ways of learning spelling, using technology to record information rather than having to write by hand, and recording information such as mind maps or neuro-linguistic programming, increasing the school staff's awareness of dyslexia, and setting realistic targets. The strategy led to improved reading scores after six months, greater enjoyment of school by the student and better relationships with his teachers.

2.3.2.4 Pathways

The review team did not find any literature from Northern Ireland covering this theme.

2.3.2.5 Assessment

The review team did not find any literature from Northern Ireland covering this theme.

2.3.2.6 Staff

Employing effective staff is crucial to helping students access the curriculum. The Education and Training Inspectorate in Northern Ireland undertook a series of inspections in 21 post-primary schools to evaluate special educational needs provision and outcomes (ETI, 2006). It explored different outcomes through observations and interviews, and included a range of provision types (selective and non-selective)⁴⁸. It noted the strengths of the 21 post-primary schools lay mainly to qualities of the staff, including:

- effective classroom support arrangements developed to respond to those pupils needing additional support with their learning
- effective and committed SENCOS
- classroom assistants, and the regular access to outreach, peripatetic, and other professional support staff
- adaptation of subject specialist schemes of work⁴⁹, and the availability of other resources⁵⁰, to meet the needs of those pupils who require additional help (p3).

Well-trained and co-ordinated staff can provide a coherent experience for students and facilitate access to the curriculum. For example, the Northern Ireland Education and Training Inspectorate's (2002) survey of the provision for pupils with special educational needs in mainstream schools found only four post-primary schools used in-class individual support, but co-ordination was good between the teacher and the SENCO in schools using in-class individual support.

Harland *et al* (2005), in their curriculum cohort study of 3,000 students aged 11 to 18 in Northern Ireland, found that overall, the suitability of the KS4 qualifications available

48 Some schools select the pupils they take on the basis of aptitude and ability, usually assessed through some kind of examination.

49 For instance, by running "base" classes with a small number of pupils, where staff promote literacy and numeracy through specialist subject teaching.

50 For instance, by making available specific structures such as improvement centres, learning support centres and nurture units.

for low ability students was inconsistent. Although GCSE courses in certain subjects proved particularly difficult, certificate-level languages and ICT-related courses (Graded Objectives in Modern Languages [GOML] or Certificate of Educational Achievement [COEA]) were sometimes considered too easy. Further, subject areas such as geography, history, maths and RE seemed to cater less well for lower attaining pupils in terms of different qualifications and types of courses, than languages or ICT-related subjects, for example.

Moran (2007) found SENCOs in schools in Northern Ireland were often available to provide support such as drafting education plans but it was inconsistent. The Education and Training Inspectorate in Northern Ireland also found that resourcing was a substantial perceived barrier to effectively accessing the curriculum, in particular restricted time allowances for SENCOs (ETI, 2006).

Lack of resources is not the only problem education staff face in Northern Ireland. Teachers and SNAs often feel inadequately trained to help students with special educational needs fully access the curriculum. Moran (2007) evaluated the effectiveness of initial teacher education in developing inclusive attitudes, values and practices. The study surveyed the views of 40 head teachers and SENCOs from 28 schools in Northern Ireland, including post-primary and special schools. The majority of head teachers and SENCOs believed initial teacher training did not equip them adequately for teaching students with special educational needs within mainstream classrooms. Head teachers from post-primary schools were less likely to believe their teachers understood the term "inclusion" than counterparts from other sectors.

Abbott (2007) interviewed 12 SENCOs in Northern Ireland and found similar results on concerns about teacher knowledge of, and attitudes towards, special needs. Interviewees thought theirs was a core position in schools, with numerous responsibilities, skills and expectations. They typically were expected to deliver a substantial teaching load, with fragmented practical support and a heavy managerial burden. Progress was often slow, partly because of inadequate teacher knowledge of, and negative attitudes towards, special educational needs provision.

Long *et al* (2007) summarised a small survey of 25 students with dyslexia in Northern Ireland and England. They found teachers were more understanding of difficulties faced by those students diagnosed as having dyslexia, but could also be lacking in empathy. One student said: "Teachers make fun of the less able students." (Long *et al* 2007 p130-131). Long also found students' problems with reading and writing could be stigmatising and led to them being bullied which could lead to the students feeling isolated after transfer to secondary school.

Training of classroom assistants and learning support staff has also been identified as an important factor in successful curriculum delivery. Moran and Abbott (2002) found teaching assistants in Northern Ireland could have an effective and multifaceted role in helping pupils with learning difficulties within a personal, interactive relationship, assisting teachers to deliver learning programmes, and provide crucial feedback to the teacher. Teaching assistants were found to deal with students of a range of ages with learning difficulties of widely varying nature and severity, and could act as "ambassadors" for students with special educational needs as they entered the adult

world. In spite of all this, school principals were concerned about the teaching assistants' responsibilities, qualifications and professional development, and how well teachers were trained to manage these. This included for example a tendency of some teaching assistants to remove the challenge of a task from some children by "doing too much for them" and therefore hindering independent learning.

Training teachers in mainstream education in Northern Ireland may not necessarily equip teachers to manage students with special educational needs effectively. Lambe (2007) measured student teachers' self-perceptions about differentiation during a one-year post-graduate diploma in education. She said the pre-service teachers expressed a concern about their competence "to teach in a classroom that tries to accommodate too many diverse needs at one time" (p69). Using a longitudinal design, Lambe found that reported self-efficacy increased over the one-year course, but anxieties about implementing differentiation remained. It appears that student teachers might need more experience in special educational needs settings to feel competent and confident in practising differentiation strategies in the classroom.

In contrast, Lambe and Bones (2008) found 15 student teachers in Northern Ireland had very positive experiences of placements in special schools or units. The trainees believed they had greater support and could be more creative and flexible in their approach to curriculum than when planning for students with special educational needs in mainstream post-primary education. Although teaching in a special unit or school was challenging, they found greater expectations were made of them in mainstream education where they were less effectively supported in teaching students with special educational needs. They had a much more positive attitude towards education in special schools after their placement there, and were correspondingly less positive about delivering the curriculum for pupils with special educational needs in mainstream education.

2.3.2.7 Transition

Communication between organisations delivering different components of care and education to students with special educational needs is central to provision of effective services. This is particularly important when students move from one level to the next, or finally leave post-primary education. Abbott (2006) found head teachers in special schools in Northern Ireland said they saw their role as extending beyond special schools to liaising with mainstream schools.

2.4 Conclusion

The aim of this narrative review was to identify key trends in the Irish and Northern Irish literature regarding the structure of and access to the curriculum for students with special educational needs in post-primary settings.

The publications included in this review were typically, although not exclusively, written as discussions of problems and barriers to effective access to the curriculum, rather than empirical evaluations of strategies to improve such access.

The review identified seven key themes across the material reviewed:

- structure
- differentiation
- flexibility and individual learning plans (ILPs)
- pathways
- assessment
- staff
- transitions.

Strategies to increase differentiation were identified (NCCA, 2007, for instance), but rigorous evaluation of their effects on student outcomes is lacking (Lynch, 2007). We also found little evidence on curriculum flexibility, alternative pathways, use of IEPs, and different assessment and certification programmes in the Irish setting.

Several authors found teaching and learning support staff felt that they had inadequate training to help students with special educational needs fully access the curriculum (Moran, 2007, Lambe, 2007). One study found that those teachers who, as students, were trained within special units or schools had more positive attitudes to teaching pupils with special educational needs (Lambe & Bones, 2008). However, as the move is towards more inclusive education, it will be increasingly difficult to offer such training in a smaller number of such services.

Effective communication across service providers is likely to improve a student's learning experience (Maunsell *et al*, 2007; Ware *et al*, 2009; Abbott, 2006), although we found no evidence about its impact on attainment or other outcomes. Poor communication and collaboration across organisations can adversely affect the transition of students through the education system (Daly *et al*, 2007).

In Section 3, we report the findings of an international review. Using the same seven key themes described above to structure the findings, the review summarises research evidence on what is known about good practice concerning the content of and access to, the school curriculum for students with special educational needs.

3 Review of the International Literature

This section describes the methods, results, and conclusions of a review of the international literature on post-primary curriculum and curriculum access issues for students with special educational needs.

3.1 Methods

3.1.1 Searching for the evidence

Searching was conducted in May 2010. Three strands of evidence were used: electronic databases, internet searches, and scanning the reference lists of highly relevant studies. The detailed search strategy for the electronic databases is presented in Appendix C. Internet searching was conducted using Google, Google Scholar, and SIGLE (System for Information on Grey Literature in Europe)⁵¹. Our searches identified 1,913 abstracts.

In accordance with standard reviewing practices⁵², rating the identified references was a two-stage process: first, references were assessed for inclusion solely on the basis of abstracts, that is the short summaries most references include; second, where ratings of reference abstracts indicated inclusion, the review team retrieved the full text and subjected the retrieved references to a full quality assessment.

3.1.2 Screening the abstracts

Abstracts and bibliographic details of the 1,913 references were loaded into the in-house evidence database. The abstracts were then screened. That is, they were assessed for their relevance to the review against the set of predetermined inclusion criteria described in the box below:

Inclusion criteria for the international literature review
<ul style="list-style-type: none"> • <i>Topic</i>: the abstract should indicate that the document is relevant to the post- primary curriculum and/or access to curriculum for students with special educational needs. • <i>Age</i>: the document's focus should be on post-primary students (typically, aged 12 to 18, depending on country). Other acceptable terms include "high school" and "secondary school". • <i>Year</i>: the document should be published during 2000-10. • <i>Research</i>: the document should report empirical research, including systematic reviews (excluding "think pieces", guidance documents, and policy pieces).

51 SIGLE provides details of reports and other grey literature produced in Europe. Grey literature includes studies not indexed in standard databases and therefore difficult to identify and obtain. Examples of grey literature include technical or empirical research reports, doctoral dissertations, some conference papers and pre-prints, some official publications, and discussion and policy papers.

52 The UK Government Social Research Service, in conjunction with the University of London's Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre), has published guidelines here: <http://www.civilservice.gov.uk/networks/gsr/resources-and-guidance/rapid-evidence-assessment/how-to-do-a-rea>

A series of pilot screening sessions was conducted to ensure consistency of decisions on inclusion between reviewers until a high level of agreement on screening decisions was reached. Where there was disagreement (for example, if one reviewer had assessed a particular study as worthy of inclusion but another felt it should be excluded), a reconciliation discussion took place until agreement was reached.

After the screening sessions were satisfactorily completed, two reviewers independently screened the studies (about half the studies each). They met frequently to ensure they were interpreting the inclusion criteria in a consistent manner. Studies that met all four inclusion criteria listed above were taken forward to the next stage of the review. Those that did not meet one or more of the criteria were excluded.

At the completion of this process, 166 references appeared to meet the criteria for inclusion. A further 48 full-text references suggested by the NCSE were added, providing a total of 214. The team made attempts to retrieve full-text documents for closer inspection of these studies: 38 were found to be irretrievable. Of the remaining 176, the review team excluded 94 on reading the full text on the grounds that they did not in fact meet the inclusion criteria. Most commonly, this was because the age range of participants in the research was inappropriate. The final number of studies included in the international review was 82.

The flow of literature diagram (Appendix D) summarises the number of studies included or excluded at each stage of the review process.

3.1.3 Data extraction and quality assessment of full texts

The studies were data-extracted by two researchers. Piloting of the tool ensured a good level of inter-rater agreement. We used a standardised data extraction tool for each study to facilitate comparisons across different studies. We recorded:

- contextual data relating to the services provided, the sample and population, and other relevant background information
- data relating to the outcomes
- methodological data on the study's aims and design
- information on the methodological quality of the primary research and report.

All research reports we included in this data extraction and quality assessment phase met the minimum inclusion criteria described in the previous section. In accordance with standard systematic review procedures, this phase adds a further level of granularity by applying quality ratings to the full text of each report.

The research team rated each of the included research reports on the extent to which they:

- included clear reporting to show high quality methodology
- were focused on the post-primary curriculum and pupils with special educational needs

- included findings easily generalised to Ireland⁵³.

The team used a nominal three-point rating scale of either [++], [+], or [-] for each of the three criteria listed above and then provided an overall score using the same rating scale⁵⁴.

We can summarise overall ratings thus:

- [++] Studies were rated as [++] on at least two of the three individual quality criteria, that is they used an appropriate methodology for the question they sought to answer, had a clear focus on curriculum and access to the curriculum at post-primary level for students with special educational needs, and findings could clearly be generalised to the Irish context (N=15).
- [+] Studies received no more than one [-] rating across the three individual quality criteria (N=45).
- [-] Studies added value to the review because they were of sufficient quality to meet the inclusion criteria, but relative to other included studies were of lower quality. This could be due to their (a) having used a methodology less appropriate for the question or was likely to lead to bias in the results; (b) having a less clear focus on access to the post-primary curriculum and students with special educational needs, and/or (c) results not easily generalisable to the Irish context. (N=22).

Two examples illustrate how studies rated [-] add value to the review despite being of a relatively lower overall quality. Stenson (2006[-]) reported an action research project that looked at the impact of curricular adaptation on special educational needs students. The findings are clearly relevant to issues of curricular access. The action research methods, the fact that the paper addressed adaptation of rather than access to the curriculum, and that it was conducted in the US all contributed to the overall [-] rating. Similarly, Griffiths (2009[-]) looked at peer mentoring, a topic often covered in the literature on staff and training in the special educational needs context, and made some important points on teaching such pupils in special schools rather than mainstream settings. The research was given an overall [-] rating because it did not use a rigorous experimental method, did not focus exclusively on the post-primary curriculum, and was based in two schools in the West Midlands of England. Both studies met the criteria for inclusion at the abstract rating stage, but were of lower quality relative to other papers included.

Appendix E of the report provides a full breakdown of quality assessment scores for each study.

53 Judgments on generalisability to Ireland were based on similarity of education system, culture and demographics, and robustness of the research methodology. Studies from countries such as China, Ghana or Botswana were typically rated relatively low. Some US studies which, for example, used national datasets (Newman, 2006), or robust quasi-experimental designs on representative samples (Bottge, 2007), were rated higher.

54 Because this is a nominal scale, we could have just as easily used A, B, C, or 1, 2, 3 as anchor points. A study rated [-] adds value in that it meets the review inclusion criteria, but is of lower quality relative to studies rated as [+] or [++].

3.1.4 Synthesis

Findings from the studies were brought together in a report using a narrative synthesis approach. Unlike the Irish literature review in which gaps were explored as well as trends in the evidence base, the international review was more focused. A narrative synthesis of the literature categorised under the themes identified in the Irish review was carried out. There was not enough reported outcomes data and too much study heterogeneity to permit a statistical synthesis of the results such as with a meta-analysis.

3.2 Findings from the Review of the International Literature

The following sections detail the international review findings. Table 5 summarises key themes identified across the research questions addressed.

Table 5: Themes described in each study (high, medium and low quality/relevance) included in the international review

High quality/relevance studies			Theme						
First author [QA]	Country	Type of SEN	Structure	Differentiation	Flexibility and ILPs	Pathways	Assessment	Staff	Transition
Alberta Educ (2009)[++]	Canada	General			X			X	
Blatchford (2004)[++]	England & Wales	General						X	
Blatchford (2009)[++]	England & Wales	General							
Douglas (2009)[++]	Various	Visually impaired			X		X		
Dyson (2004)[++]	England	General	X						
Farrell (2007)[++]	England	General	X						
Kalambouka (2005)[++]	Various	General	X						
Kane (2003)[++]	Scotland	General			X				
MacBeath (2006)[++]	England	General	X				X	X	
Marschark (2009)[++]	Various	Hearing impaired	X		X			X	
Newman (2006)[++]	US	General	X					X	
Nind (2004)[++]	Various	Literacy						X	
Rubie-Davies (2010)[++]	England & Wales	General						X	
Tomlinson (2003)[++]	Various	General		X					
Yu (2009)[++]	US	Learning disabilities			X				
Total 15			6	1	5	0	2	7	0

IEPs = individualised education plans, UK = United Kingdom, US = United States, HK = Hong Kong. NZ = New Zealand

QA scores: [++] = high quality and relevance to the review; [+] = moderate quality or relevance; [-] = low quality or relevance

Medium quality/relevance studies			Theme						
First author [QA]	Country	Type of SEN	Structure	Differentiation	Flexibility and ILPs	Pathways	Assessment	Staff	Transition
Angelides (2007)[+]	Cyprus	Hearing		X				X	
Arthaud (2000)[+]	US	Literacy					X		
Black-Hawkins (2008)[+]	England	General	X						
Bottge (2007)[+]	US	Learning disabilities			X				
Brackenreed (2004)[+]	Canada	General					X		
Broer (2005)[+]	US	Learning disabilities						X	
Bulgren (2002)[+]	US	General		X	X			X	
Byers (2008)[+]	England	General	X	X					
Dart (2007)[+]	Botswana	General	X		X			X	
Dymond (2006)[+]	US	General			X			X	
Dyson (2000)[+]	England	General	X					X	
EAD (2006)[+]	Various	General						X	X
Ellins (2005)[+]	England	General	X						
Emam (2009)[+]	UK	General						X	
Fish (2008)[+]	US	General			X				
Humphrey (2008)[+]	England	General						X	
Jarvis (2003)[+]	England	Hearing impairment	X						
Johnson (2007)[+]	US	Physical disabilities					X		
Keyes (2003)[+]	US	General			X				
King (2003)[+]	US	General	X					X	
Kontu (2008)[+]	Finland	Learning disabilities					X		
Kortering (2005)[+]	US	Learning disabilities	X		X				
Li et al (2009)[+]	China	General					X		
Loreman (2001)[+]	Australia	Disabilities						X	
Mariage (2009)[+]	US	Literacy	X					X	
Markussen (2004)[+]	Norway	General	X						
Martin (2004)[+]	US	General			X			X	
McNicholas (2000)[+]	England & Wales	Learning disabilities	X		X			X	
Murry (2000)[+]	US	General						X	
Nelson (2006)[+]	US	General					X		
Olsen (2009)[+]	US	Learning disabilities		X					
Persson (2008)[+]	Sweden	General							
Pudlas (2004)[+]	Canada	General	X						
Rix (2006)[+]	Various	General			X			X	
Roach (2006)[+]	US	General			X				
Rose (2007)[+]	US	Severe disability	X						
Schumaker (2002)[+]	US	General	X	X					
Smith (2006)[+]	Various	General	X					X	
Thompson (2005)[+]	US	General					X		
Tillmann (2001)[+]	US	General							X
Unruh (2007)[+]	US	General	X						
Van Acker (2005)[+]	US	Behavioural			X				
Visser (1997)[+]	Various	General		X					
Waite (2005)[+]	England	Learning disabilities	X						
Wilson (2006)[+]	US	General						X	
Total 45			17	6	12	0	7	18	2

IEPs = individualised education plans, UK = United Kingdom, US = United States, HK = Hong Kong, NZ = New Zealand

QA scores:[++] = high quality and relevance to the review;[+] = moderate quality or relevance;[-] = low quality or relevance

Lower quality/relevance studies			Theme						
First author [QA]	Country	Type of SEN	Structure	Differentiation	Flexibility and ILPs	Pathways	Assessment	Staff	Transition
Allodi (2007)[-]	Sweden	General	X						
Arif (2008)[-]	Dubai	General			X			X	
Doole (2008)[-]	Australia	Learning disabilities			X				
Ee (2005)[-]	China	General			X				
Griffiths (2009)[-]	UK	General						X	
Herold (2009)[-]	England	General						X	
Kokkinos (2009)[-]	Greece	General						X	
Lingard (2001)[-]	England	General							
Lombardi (2002)[-]	Various	General	X						
Maddison (2002)[-]	England	General			X		X		
Martin (2001)[-]	US	General						X	
Mid-Continent(2000)[-]	US	General					X		
Milton (2003)[-]	Australia	General						X	
Ocloo (2008)[-]	Ghana	General	X					X	
Piggot-Irvine (2009)[-]	NZ	General	X					X	
Sargent (2001)[-]	US	Learning disabilities		X					
So (2005)[-]	Macao	General						X	
Stenson (2006)[-]	US	Reading disabilities		X					
Stroggilos (2006)[-]	Greece	Learning difficulties			X				
Wasburn-Moses (2006)[-]	US	General	X						X
Wheeler (2008)[-]	England	ADHD						X	
Yeh (2006)[-]	US	General					X		
Total 22			5	2	5	0	3	10	1

IEPs = individualised education plans, UK = United Kingdom, US = United States, HK = Hong Kong. NZ = New Zealand

QA scores:[++] = high quality and relevance to the review;[+] = moderate quality or relevance;[-] = low quality or relevance

3.2.1 Overarching principles and structures for curriculum at post-primary level

Summary of the evidence

- Only two studies explored how curriculum for students with special educational needs should be designed. They found Universal Design for Learning to lead to better social skills and more enjoyable learning, but did not report educational attainment outcomes (Dymond *et al*, 2006[+]; Kortering *et al*, 2005[+]).
- Classroom teachers often have positive attitudes to including students with special educational needs in mainstream post-primary classes (Schumaker *et al*, 2002[+]; King and Youngs 2003[+]), and additional support is commonly available from other staff and modified curricula (Newman 2006[+]; Kortering *et al*, 2005[+]; Schumaker *et al*, 2002[+]). Teacher attitudes are important in determining how far students with special educational needs can access the curriculum (Rose *et al*, 2007[+]).
- However, some of these students may struggle in mainstream settings, especially socially and emotionally (Macbeath *et al*, 2006[+]; Allodi, 2007[-]); and may benefit more from part-time or partial inclusion (Waite *et al*, 2005[+]).
- Teachers perceive practical difficulties as a barrier to full inclusion in some subjects, such as physical difficulties in reaching and using equipment or participating in sports (Ellins & Porter, 2005[+]; Persson, 2008[+]; Smith & Thomas, 2006[+]), and access is often restricted as a result (Mariage *et al*, 2009[+]; McNicholas, 2000[+]; Newman, 2006[+]; Wasburn-Moses, 2006[-]; Yu *et al*, 2009[+]).
- Lack of staff and material resources is another common barrier to effective inclusion of students with special educational needs, especially in less affluent countries (Dart, 2007[+]; Lombardi & Lombardi, 2002[-]; Ocloo & Subbey, 2008[-]).
- Inclusion of students with special educational needs into mainstream classes improves their social skills and relationships with students without special educational needs (Dyson *et al*, 2004[+]; Farrell *et al*, 2007[+]; Kalambouka *et al*, 2005[+]), but its effects on educational attainment are unclear (Dyson *et al*, 2004[+]; Kalambouka *et al*, 2005[+]; Markussen, 2004[+]; Marschark & Spencer, 2009[+]; McNicholas, 2000[+]; Pudlas, 2004[+]).
- Teachers see the extra time needed to accommodate students with special educational needs as a barrier to inclusion (King & Youngs, 2003[+]) and need additional administrative (Wasburn-Moses, 2006[-]) and leadership support (Black-Hawkins *et al*, 2008[+]; Byers *et al*, 2008[+]; Dyson *et al*, 2004[+]) if inclusion is to be achieved.
- Several studies report that support is inconsistently provided for teachers (Piggott-Irvine, 2009[-]) and students with special educational needs (Jarvis, 2003[+]; Marschark & Spencer, 2009[+]).

- Curriculum flexibility to meet individual needs of students with special educational needs is considered important (Alberta Education, 2009 [++]), but the curriculum for these students can be too narrow (Alberta Education, 2009 [++]).

Knowledge gaps

- No studies were identified that evaluated the educational effects of full or partial inclusion of students with special educational needs in mainstream post-primary classes.
- No studies were identified that reported on how best to remove barriers to inclusive education or how best to use limited resources to support teachers and students with special educational needs in post-primary settings.

As described in the Executive Summary, schools in Europe and North America have been moving towards providing education for students with special educational needs in mainstream rather than special schools. We identified a body of research that raised concerns about the implications of such inclusion on the ability of these students to access the curriculum.

King and Youngs' (2003[+]) study of four post-primary schools in the US found teachers across all four schools were firmly committed to inclusion. They saw it as a benefit not only for students with disabilities, but also for other pupils and for their own teaching. At all schools, teachers modified their instruction for students with disabilities in their classes, but only at three schools were teachers committed to practices consistent with authentic intellectual work – defined as construction of knowledge (producing new knowledge not just memorising and repeating facts), disciplined enquiry (achieving in-depth understanding and expressing conclusions from knowledge), and giving value beyond school (connecting what is being learned with the student's personal and social issues). Although support for inclusion was generally strong, many teachers noted that there was a downside for students with disabilities and their teachers. The negative effects included the extra time required for lesson or assignment preparation and for participation in meetings for students with disabilities (such as IEPs), the occasional practice of placing too many students with disabilities in a single class, and the experience of confronting their own lack of skill in accommodating these students. Virtually all teachers across the four schools modified their instructional practices to accommodate the needs of students with special educational needs. There was, however, considerable variation in the extent to which they espoused authentic instructional practices and held challenging expectations for those with and without disabilities.

Several authors suggested that students not emotionally and socially comfortable in mainstream settings might struggle to access the curriculum. MacBeath *et al* (2006[++]) gathered data on the costs of inclusion from 20 post-primary schools in England, and concluded that, although some children and young people thrive in the mainstream environment, others find it difficult or even threatening and the conventions and strictures of mainstream school do not meet their needs. This is more likely in secondary schools where structures of the school day, the curriculum, and involvement with multiple teachers are barriers to the kind of emotional support and learning climate

that some young people need. Students frustrated by learning difficulties can express this as “bad” behaviour and may then be the subjects of sanctions rather than support.

Allodi’s study of staff, parents and pupils from 21 schools in Sweden also reflected concern about the appropriateness of mainstream education for more vulnerable students with special educational needs. Those without the necessary social functioning or good peer relations could find post-primary schools particularly hostile. Parents who refuse routine placement in a differentiated group within the school and struggle for the child to attend a regular group may be resented by the staff and considered to be rebellious or unreasonable (Allodi, 2007[-]).

Persson’s (2008[+]) study of interviews with 200 professionals and politicians and 30 upper secondary school students in Sweden aimed to assess how far Swedish schools are accessible for all students, including those with special educational needs, emphasised the difficulties in adapting learning environments while trying to be inclusive. Ambition was high with regard to adapting educational programmes for the disabled student group. In practice, however, head teachers and their staff had considerably more difficulty delivering an appropriate curriculum to students. Specific problems were caused by the nature of the subjects and activities; the responsibilities, attitudes and skills of educational staff; and challenges around the social inclusion of students with special educational needs. Problems in any of these areas could lead to reduced access to the curriculum through non-participation in lessons and activities, a lack of adequate provision, and social isolation. Most students felt the individual support they received in their specially adapted educational environment was a great help and made it easier to cope with the work challenges, but also felt they were missing out on other activities available for pupils without such needs. The adaptation involved schools offering an individual programme where students worked in small groups at their own pace.

Schumaker *et al* (2002[+]) examined the views of teachers and students with disabilities or at risk of low attainment in nine public schools in the US serving grades nine to 12 (children aged 14 to 18). The study involved questionnaires, interviews and focus groups with participants, as well as tests of pupils’ academic ability to standardise assessment of attainment across schools and class observations. No school offered a comprehensive programme for students with disabilities, and seven of the nine failed to offer designated services for students with disabilities within general education classes. The other two offered resources to help with homework and skills training. The 70 general education teachers surveyed reported that they frequently adapted the curriculum for students with disabilities. The only example of how this was done, however, was to put more emphasis for these students on how to learn rather than teaching facts. The school with the highest satisfaction ratings from general education teachers and students with disabilities was described as having vision, policies, and standard procedures for educating students with disabilities within the general education curriculum, including help with homework, instruction in learning strategies, and instruction in career and life skills.

For students who cannot be educated completely within mainstream schools, benefits can arise in better access to the curriculum from part-time attendance in general education. Waite *et al* (2005[+]) evaluated a pilot project in England in which students

with moderate and severe learning difficulties based in post-primary special schools were included in lessons in mainstream schools for part of their timetable. Teachers reported a substantial increase in the use of differentiation techniques; increased awareness and acceptance of disability among students in mainstream schools and increased opportunities for access to full-time mainstream school for these students. The project also resulted in better use of external services; stronger partnerships with parents; increased pupil participation in decision-making; improved relationships in school, especially among staff; and increased consultation. Students reported increased access to extra-curricular activities; more support from other adults; more learning about different cultures; and teachers and support staff reported improvements in teamwork among staff.

Universal Design for Learning (UDL) is based on the theory that the curriculum should be designed from the beginning to incorporate the diverse needs of all students by providing flexibility. The aim is that UDL reduce barriers to the curriculum while ensuring that it is appropriately challenging for all students. Kortering *et al* (2005[+]) measured the views of 320 algebra and biology students from two US post-primary schools that introduced a UDL framework, including differentiation techniques using software, visual aids, and group work. Six per cent of the students were identified as learning disabled; 2 per cent as behaviour-disordered; 1 per cent as mildly mentally handicapped; and 4 per cent with attention deficit disorder. With UDL, students were more likely to report that the information they learned was useful in its own right as well as helping them to pass the end-of-course exam, and enjoyable, compared with their other high school academic classes. Results are not presented separately for those with special educational needs, however, so it is difficult to say if the benefits noted resulted from differentiation or the specific tools used (for example, students might have enjoyed the visual aids for themselves, without the content being differentiated in any way).

Dymond (2006[+]) evaluated the implementation of the UDL approach to developing a high school science course in the US. The course developers considered questions around curriculum such as how to link the lessons to the course's "big ideas", how to vary the curriculum by adding and deleting content to accommodate different learning needs, how to sequence the teaching so that each new concept or skill built on previous learning and contributed to the understanding of the main idea, how the lessons related to outcomes for students outside school, and how other curriculum areas such as reading, writing and mathematics could be included within the course. Students used traditional materials in new ways, such as large print versions of textbooks or highlighted material, and also used new materials such as laptop computers with internet access, or games or constructional materials to conduct experiments and present the results. All students could choose how they received information, such as reading a text, listening to a CD or working with an instructor, but some students needed to be taught additional skills to help them make these choices.

Dymond *et al* (2006[+]) identified the key outcome observed for the UDL programme on students with social and conduct disorders as improved social skills and increased interaction with others, as well as greater enthusiasm, participation, and engagement with the curriculum. In addition, those without disabilities became more tolerant of their

peers with social and conduct disorders. But teachers believed students behaved better and participated more when they were given more structured and traditional activities, such as making notes or filling in a worksheet. Addressing the IEP needs of students with special educational needs was also seen as an important component of the course redesign. Teachers saw writing structured lesson plans as very helpful in creating the redesigned lessons since they clarified and communicated exactly what would occur in the lesson and ensured that the needs of all students were met.

It is generally agreed that providing access to a full curriculum for many students with special educational needs requires a degree of modification of what is taught and how it is delivered and assessed. But the degree to which this happens in practice is variable. Newman (2006[++]), reporting data from the National Longitudinal Transition Study-2 (NLTS2) in the US, found a third of secondary school students with learning disabilities received the standard general education grade-level curriculum, half had teachers who reported making “some modifications” to the general education curriculum; and fewer than one in six received substantial modifications to the general education curriculum or a specialised curriculum. The type of instruction was similar for students with and without special educational needs. Whole class instruction was “often” provided for 65 per cent of those with and 68 per cent of those without such needs, and small group instruction was often provided for 16 per cent of both groups. Only in the amount of individual instruction received from an adult other than the teacher (for instance a special education teacher or a personal aide) did students with learning disabilities differ from their class peers (12 per cent receiving such support, compared with 6 per cent of students without special educational needs). Additional support was available to these students, however, with almost all with learning disabilities receiving some type of accommodation or support to enhance their school performance. This included additional time to complete tests or assignments; input from special education teachers to monitor progress; frequent feedback from general education teachers; modified grading criteria; slower-paced instruction; having tests read to them or being given modified tests; study skills assistance; and additional individual support from teacher aides, instructional assistants, personal aides, or extra tutoring. Schumaker *et al* (2002[+]) also found that students with special educational needs in the US were more likely than their peers to report receiving help with homework.

Another study (Newman, 2006[++]) showed students with learning disabilities participated less actively than others in their general education classes, although it is unclear whether the lack of curriculum modification directly caused this. For example, 37 per cent of post-primary students with special educational needs often responded orally to questions compared with 66 per cent of students without, and 21 per cent of those with special educational needs never answered questions, compared with 1 per cent of students without (Newman, 2006[++]).

We found few studies that reported on academic attainment in students with special educational needs and their peers in the context of curriculum access. Those we did identify suggest that there is still room for improvement. Marschark and Spencer (2009[++]) reviewed the international literature on best practice models and outcomes in the education of deaf and hard-of-hearing children and concluded that no significant

improvement in attainment has been found so far for hearing-impaired post-primary students taught in mainstream classes rather than special classes, and co-enrolment of hard-of-hearing and mainstream students has also not been shown to lead to consistent academic benefits. McNicholas (2000[+]) found many teachers surveyed in the UK considered that group work was effective for post-primary students with profound and multiple learning difficulties, although most claimed their students only made “significant progress” in one-to-one situations. It is not clear from the report if the effectiveness and progress refer to improvements in academic attainment.

Kalambouka *et al* (2005[++]) reviewed evidence on the relationship between the inclusiveness of a school and the outcomes it produces for its student population, in particular those students without special educational needs. Of the review’s 26 studies, only five reported outcomes from inclusion in a post-primary setting. Of these, none reported a positive impact on peers without special educational needs from inclusion of students with special educational needs. The five studies reported neutral (three studies) and/or negative impacts (two studies) from inclusion of students with cognitive, learning, emotional or behavioural problems, and one study reported neutral impacts with inclusion of students with sensory or physical disabilities.

Pudlas (2004[+]) found students with special educational needs in Canada scored significantly lower ($p < 0.01$) than the comparison group in terms of their general self-concept. Results did not differ between two public schools (one a secondary school) run by the state, and two parochial schools (one a secondary school) run by religious groups or parishes.

Dyson *et al* (2004[++]) used the National Pupil Database (NPD), containing the details of over 500,000 students in mainstream education, and a brief literature review, to explore attainment of post-primary students with special educational needs in the UK. Dyson found no evidence of a relationship between inclusion and attainment at a local authority level. There was, however, a small and negative statistical relationship between inclusivity and attainment within individual schools. This suggests that students at schools with higher numbers of students with special educational needs achieved slightly lower grades than they would have done at schools with fewer of these pupils. This was balanced by the perception (chiefly among staff and pupils) of improved personal and social skills in more inclusive schools for all students. However there were concerns that special educational needs could be a risk factor for social isolation or low self-esteem.

Farrell *et al* (2007[++]) explored the relationship between achievement and inclusion in mainstream schools in England. They identified whether inclusion (that is the proportion of special educational needs pupils within a school) had any impact on overall attainment; and how inclusive schools with high attainment achieved this. Data were analysed from the NPD containing results from national assessments in Years 2, 6, 9 and 11 and demographic data of pupils, including special educational needs status according to the “level” of special provision required as outlined in the SEN Code of Practice (DfES, 2001). In addition, a series of case studies was undertaken in a diverse group of 16 schools with a high proportion of this student cohort (relative to schools with similar levels of free school meals entitlement). Twelve had overall very high

levels of student attainment, and four had below-average levels of student attainment. Data from the case studies were collected through interviews with key professionals (head teachers, teachers with special educational needs responsibilities and so on), analysis of school documentation, focus studies of students with higher levels of special educational needs provision, informal observations, and questionnaires. The report indicated that where schools had high levels of inclusivity, provision for special educational needs pupils tended to be delivered with increased flexibility alongside use of adult support. In addition inclusive schools were found to share a positive and welcoming ethos, employing good practice classroom techniques and using a variety of strategies to improve attainment of all pupils, including improvement of teaching quality and focusing on perceived weaknesses in pupil skills or capacities. Despite these positive features, multi-level modelling of national data found students in schools with greater proportions of special educational needs pupils tended to have slightly reduced attainment (as measured by national assessments and examinations at Years 2, 6, 9, and 11) than students in less inclusive schools. This was so even when other factors were considered such as the expected reduction in average point scores from the lower scores of students with special educational needs in the overall group. This was more evident in secondary rather than primary education, with each 1 per cent rise in students with special educational needs being associated with a 0.1 per cent fall in average point scores at KS 1 (age seven), up to a 0.8 per cent decrease in average point scores at KS 4 (age 16). The authors concluded, however, that a school would need large numbers of students with special educational needs for score difference to be anything other than trivial, and they had found no evidence to suggest the policy of inclusion should be changed.

The range of subjects and activities for which students with special educational needs might be included or excluded is an indicator of the extent to which the curriculum is accessed. The evidence we identified is somewhat contradictory on this topic. Students with special educational needs can be excluded from certain activities that teachers feel cannot be modified sufficiently to include them, in particular science and sports. However, students with lower academic abilities can also be excluded from full access to more academic aspects of the curriculum. There is a real risk that those with special educational needs could be excluded from a substantial proportion of the curriculum for these different reasons. This is more likely at post-primary level where such decisions are more in the control of individual subject teachers with no overview of the education each student is receiving.

A systematic review by Smith and Thomas (2006[+]) reported a tendency for teachers to indicate that more individualised physical activities (swimming and badminton) were easier to implement for post-primary students with special educational needs in a mainstream setting than group sports. This is a concern firstly because core physical education curricular experiences might not be offered if they are seen as too difficult, and secondly because the students perceived these types of activities as inferior compared with those offered to the rest of the class. Ellins and Porter (2005[+]) conducted a case study of a UK post-primary school and found science teachers in particular were concerned about behaviour and safety during practical sessions. Teachers of other subjects (including technology) mentioned similar worries. They concluded that the nature of the subject had no impact on curriculum delivery (p194).

Teachers of the core subjects, as a group, were also more negative than those of the foundation subjects and the more “affective” subjects. Subjects that did not rely on literacy and numeracy skills, however, were generally considered most suitable for students with special educational needs. Science teachers believed the technical subject’s language and abstract concepts created difficulties for these students, and adversely affected their progress compared with English and mathematics at KS 3 (14 years). McNicholas (2000[+]) reported that students were fully integrated in just over a third of 114 post-primary schools from 72 local education authorities in England and Wales. In the remaining schools, most students were only integrated for specific subjects, usually the less academic ones of music, physical education, drama, art, and language. Similarly, Yu *et al* (2009[+]) explored the secondary school experiences of students with mental retardation in the US as part of the National Longitudinal Transition Study 2 (NLTS2). On average, half the courses taken by students with special educational needs were academic, with a fifth of classes offering vocational education and a third non-academic classes, such as sport or art. Students were significantly more likely to take academic classes in special education settings rather than in general education schools ($p < .001$).

Unruh *et al* (2007[+]) surveyed 152 school districts in the US and carried out more than 300 interviews in 8 school districts to determine the provision of special educational needs programmes and practices. They found attending alternative educational settings could be stigmatising for the students and many hold the view that only “bad” kids or potential dropouts attended. Students with special educational needs may face dual stigmatisation for being both a youth with disability and for attending an alternative educational school or programme. Mariage *et al* (2009[+]) evaluated teaching of reading skills to middle school students at risk of low attainment attending urban and suburban public schools in the US. Urban schools were included if at least 60 per cent of their students received free lunches and minority enrolment was at least 30 per cent. Suburban schools were included if minority enrolment was under 25 per cent and less than 35 per cent of students received free and reduced lunches. The principal, one general education and one special education teacher from each school were interviewed. Most schools ran classes to improve reading skills and mainly used a mixture of modified materials and methods rather than a separate curriculum for students with special educational needs. General and special needs teachers aimed to align the curriculum with state standards but this was more successful in suburban schools. The urban schools had significantly lower achievement in reading skills and reading classes were focused more on supporting poor readers than in suburban schools. Wasburn-Moses (2006 [-]) found most special education teachers they surveyed in the US were teaching reading, and nearly half were teaching writing daily. Those who were pleased with their programme cited administrative support, access to quality textbooks and effective use of inclusion (although details about what made inclusion effective were not described in the paper). Problems included lack of a uniform and specialised approach to teaching reading and writing, limited student choice and lack of training or support for teachers.

A number of studies mentioned the role of school management, policies and administration in helping students access the curriculum. This varied from positive

findings, such as teachers expressing satisfaction with the administrative support in their school (Wasburn-Moses, 2006[-]), to negative findings, such as teachers being unhappy with confused processes (for instance Piggot-Irvine, 2009[-]). A school management team's support and encouragement was seen as crucial as it provided teachers with valuable opportunities to try out new ideas (Black-Hawkins *et al*, 2008[+]; see also Byers *et al*, 2008[+]; Dyson and Millward, 2000[+]).

Dyson and Millward (2000[+]) found innovative schools in the UK had a leadership committed to inclusive principles which drove developments forward (usually the head teacher); attempted to dismantle or transform some of the old separate special educational needs structures in favour of a response to diversity more clearly located in the mainstream curriculum and classroom; had a heavy reliance on in-class support as a means of maintaining students in the ordinary classroom; and emphasised the professional development staff to encourage appropriate curriculum delivery and promote collaborative relationships between special educational needs and general staff. Despite these positive influences, the strategies relied heavily on in-class support, a restructured SENCO role, and emphasis on differentiation. But there was a tendency to use these structures to maintain a rather non-inclusive status-quo, such as maintaining segregated special educational needs support rather than fully delivering the curriculum in the mainstream classroom setting.

Jarvis (2003[+]), in a study of UK schools, found similarly inconsistent levels of support for students with hearing impairment. Only some students had been involved in planning the level and type of support they received. Others reported having help in lessons where they felt it was not needed, and failing to receive support elsewhere. Academic support from teachers of the deaf, both those based in a unit and those who visited the school on a peripatetic basis, helped students with work they found difficult and with revision for exams. This was often provided as segregated tuition, often in a unit classroom, and students perceived that this was because the work was harder in the mainstream and that they needed help to achieve an appropriate standard for full classroom inclusion. Specific strategies for teachers with hearing-impaired students in mainstream classes included speaking clearly and repeating what has been said; making sure the speaker's face is visible for lip-reading; using visual support for language, such as pictures; keeping the noise level in the classroom low; and monitoring other pupils' behaviour so that the deaf child is not teased and is included in activities. Students appreciated having the support, but preferred it to be unobtrusive so they were not stigmatised before their peers.

Modifications and support to deliver the curriculum frequently involve use of technology and additional resources, which may be restricted in some schools and/or not used when available. Marschark and Spencer (2009[++]) reviewed the international literature on best practice models and outcomes in the education of deaf and hard-of-hearing children. Teaching hard-of-hearing students in mainstream classes requires supports such as preferential seating, use of personal and sound field frequency-modulated systems, presentation of important information as written materials and checking frequently for comprehension. Even in higher education, students need instruction

in strategies and devices to help with problem-solving such as visualising problem solutions.

In a study on schools using the Universal Design for Learning (UDL) framework, Kortering *et al* (2005[+]) found technologies such as PowerPoint presentations, laptops and websites were used to visually engage regular students and those with special educational needs. Newman's (2006[+]) study found similar proportions of students with and without special educational needs were using computers to access the curriculum. These technologies allow differentiation because students can progress through their work at their own pace.

Concerns about lack of resources for supporting students with special educational needs were particularly common in resource-poor countries, such as Ghana (Ocloo & Subbley, 2008[-]). However, Dart's (2007[+]) review of special educational needs provision in Botswana noted a lack of resources was usually attributed to confusion over who was responsible for what resource. Resources were sometimes under-utilised (such as fairly sophisticated equipment for students with visual impairment that had never been used). A lack of adapted teaching and assessment materials (Brailled and talking books, for example) was seen as a key barrier to accessing the curriculum for those with visual impairments.

Lombardi and Lombardi (2002[-]) reported that special education teachers and administrators in Portugal and the US also frequently had concerns about monetary support and insufficient staffing, but tended to have positive attitudes towards special educational needs provision despite these concerns.

We identified one study that evaluated the views of the broader community on curriculum for students with special educational needs. A Canadian study (Alberta Education, 2009[+]) consisting of public consultation concluded that the existing curriculum was "too narrow", and did not meet the diverse learning needs of a broad range of students, especially those with severe cognitive or social emotional disabilities. Respondents believed that life skills curricula were needed for secondary level students. Some expressed concerns about modifying the curriculum at the high school level and wondered if this were even possible. While many agreed that curriculum topics could – and should – be adapted to meet the different needs of students, they strongly advised that this work not be downloaded to teachers who had not the time to do it, but should instead be developed centrally and made available to all teachers. Curriculum was thought to be less important to meeting the student needs than ensuring that teachers have sufficient time, materials, resources and training. A curriculum shift to reflect life skills, character education and critical social skills that students need to succeed in life was considered important. This means a curriculum "rethink" to fit diverse learners rather than "re-tooling" simply to accommodate them, with the development of a more adaptable rather than a more accessible curriculum. Although several studies mentioned additional lessons on vocational and social skills, no study evaluated whether such programmes effectively improved outcomes such as future employment or social relations.

3.2.2 Differentiation and delivery of content

Summary of the evidence

- Teachers usually adapt the curriculum for students with special educational needs using methods such as differentiation (Angelides & Aravi, 2007[+]; Bulgren *et al*, 2002[+]; Newman, 2006[+]; Nind *et al*, 2004[+]; Tomlinson *et al*, 2003[+]).
- It is claimed that appropriate curriculum adaptation can improve educational attainment, but studies have either had no comparison group (Sargent, 2001[-]; Stenson, 2006[-]) or have been very small (Olsen & Slater, 2009[+]) so its effectiveness remains unclear.
- How the curriculum is taught and assessed is important, as well as what is taught (Bulgren *et al*, 2002[+]; Byers *et al*, 2008[+]), and teacher attitudes to curriculum are important (Bulgren *et al*, 2002[+]). Students with special educational needs may be assessed against different indicators of success compared with students without (Bulgren *et al*, 2002[+]).
- Streaming of students has been associated with reduced inclusion of those with special educational needs and lower satisfaction scores for these students and teachers (Schumaker *et al*, 2002[+]).

Knowledge gaps

- We found no robust studies evaluated the effects of differentiation or other methods of delivering the curriculum on educational attainment.
- We found no studies that compared different methods of differentiation to determine which is the most effective.

Adaptation of materials, instruction, assessment and the classroom environment are common techniques to help children with a range of abilities to access the curriculum. One systematic review of inclusive education in both primary and post-primary settings reported that the most common pedagogical or classroom technique was adaptation of instruction, such as teaching students to use specific memory techniques to help them remember the material (Nind *et al*, 2004[+]).

Visser (1997[+]), in his review of international evidence, referred to differentiation as “a term spanning many issues” (p31) which he noted to include: teaching styles, grouping practices, issues of segregation versus inclusion, setting/streaming of different abilities, and curriculum provision. According to Visser (1997[+]): “Some authors view [...] differentiation as a teacher’s ability to use resources” (p36). Details of what resources might help were not discussed other than to criticise the belief that adequate differentiation at post-primary level can be achieved by merely providing three different worksheets per class, one for each of three ability groups. The studies we identified generally agreed with the principle that resources such as classroom assistants, written materials targeted at students with different types of special educational needs, and additional technology were necessary for successful implementation of differentiation. Indeed, inadequate resourcing as a barrier to differentiation was one of the strongest emerging themes across the evidence.

Differentiation is one technique used to facilitate access to the curriculum. Tomlinson's (2003[+]) literature review on the need for "differentiated" or academically responsive instruction in academically diverse classrooms concluded that, when students encounter tasks at a moderate level of difficulty, they are more likely to sustain efforts to learn. When tasks are either too difficult or insufficiently challenging they are less likely to progress. Effective class differentiation should include proactive curriculum differentiation and instruction rather than a reactive response to students who are failing to make adequate progress. Other strategies Tomlinson recommends include:

- flexible use of small group learning and teaching in the classroom
- varied use of learning materials
- matching materials to the students' instructional needs
- variable pacing of the class to respond to learners' needs
- knowledge-centred teaching, using the knowledge-base of teachers alongside materials and concepts to ensure student understanding
- learner-centred teaching, whereby students play an active role in learning, helping them to see the utility in the subjects they are learning.

Most studies reported the use of more than one type of differentiation strategy. There are two main consequences of this finding. First, it is clear that many schools and teachers use a range of techniques to help enhance the students' learning experiences. Second, it is difficult to determine from such studies which component of a combined strategy might be effective, and whether there are any widely used strategies that do not actually improve outcomes.

The Deployment and Impact of Support Staff (DISS) project in England and Wales found pupils with special educational needs were often removed from the main class and its teacher at secondary level for one-to-one interaction with the Teaching Assistant (TA), meaning that the neediest pupils were in most danger of being regularly cut off from the teachers, and TA input was instead of, rather than additional to, input from teachers. At secondary schools, 87 per cent of observations showed the students working on different tasks from those of their class peers – a process of differentiation that resulted in supported pupils becoming separated from coverage of mainstream curriculum topics (Blatchford *et al*, 2009[+]).

A study conducted in nine UK secondary schools and colleges found people with learning difficulties, disabilities and/or special educational needs were often excluded from school representation and had access only to limited information (Byers *et al*, 2008[+]). This study shows the young people and the adults involved in the "What about us?" project agreed that what teachers teach and how they teach it are both important. Staff needed more flexibility in developing their practices in these areas. Managers could make a major difference – for example, through the support and training they offered staff who wanted to develop innovative and inclusive approaches.

In a US sample of more than 11,000 students with special educational needs aged 13 to 16, Newman (2006[+]) reported that 94 per cent receive some type of

accommodation or support. Strategies included extra time to complete tests (76 per cent of students) or assignments (67 per cent), and slower-paced instruction (25 per cent).

Bulgren *et al* (2002[+]) explored support in place to assist special educational needs pupils to succeed in high schools in the US. Teachers indicated that they adapted the curriculum to accommodate the learning styles of these students and that teaching techniques for independent learning often had equal importance to teaching the general curriculum.

Angelides and Aravi (2007[+]) conducted a small-scale study based on classroom observation and interviews with teachers from one post-primary mainstream school in Cyprus, with a sample of seven hearing-impaired students taught by nine teachers. Differentiation strategies used by the teachers included setting easier goals, shortening the text of classroom materials, changing complex and unknown words with simpler wording, and using equipment such as visual aids.

Bulgren *et al* (2002[+]) found differences in success indicators for students with and without special educational needs in the US. For students without disabilities, teachers saw success depending on ability to demonstrate and manipulate content knowledge. In contrast, teachers had a lower threshold for determining success for students with special educational needs, with success largely viewed as ability to demonstrate basic skills and strategies.

A successful programme for improving reading ability and special educational needs students' beliefs about their own academic ability in the US was reported by Stenson (2006[-]). The reading programme used graphic organisers to reinforce the relational structures within reading passages (drawing a map of the relationships between characters in a book). Stenson found the academic level achieved by the students had increased by 21.5 per cent, and their reading ability increased by an average of 6.6 per cent on a standardised reading test, although no comparative data was presented for students not using the programme. The programme allowed for differentiated instruction so that the needs of all children in the class could be met.

Reading achievement was also the focus of a qualitative study by Sargent (2001[-]). A programme called "Achieve", which is a holistic approach to teaching the reading curriculum, was found to increase reading achievement and engagement of ten children with learning disabilities in a US middle school. Improvements were noted through classroom observation, responses to skill-based questions asked in an interview, and through responses to a small reading task. The holistic curriculum allowed each learner to take part in a transactional learning environment; facilitated reading engagement behaviours; forced and encouraged interactions between learners; and enhanced skills at answering various questions. It is difficult to say if these findings can be generalised to students beyond this sample.

Schumaker *et al* (2002[+]) examined the views of teachers and students with special educational needs in nine public schools in the US serving grades 9 to 12. Schools that tended to separate these students and offer classes streamed for ability were associated with lower satisfaction scores, and they performed worse academically in these schools compared with more inclusive schools.

Olsen & Slater (2009[+]) report on a study where a subset of the curriculum materials for a middle school astronomy package were modified to reflect best practice in working with students with special educational needs. Modifications used computer technology including voice descriptors and visual cues to present information in a range of modalities, to simplify text but not content, to focus student attention onto the lesson's most important details, and to facilitate vocabulary-acquisition by all students. Those with special educational needs who used the regular curriculum had a post-test decrease of 7 per cent in scores compared with a 7 per cent gain in average post-test scores when they used the modified curriculum, with some gaining up to 30 per cent in post-test scores. However, absolute numbers of students with special educational needs were small, with only 21 matched pairs. Students without special educational needs seemed not to benefit additionally from the modified curriculum, with an 8 per cent gain score post-test with the normal curriculum and a 9 per cent gain using the modified curriculum.

3.2.3 Curriculum flexibility, breadth and IEPs

Summary of the evidence

- Curriculum flexibility to meet individual needs of students with special educational needs is considered important (Alberta Education, 2009[++]), but the curriculum for these students can be too narrow (Alberta Education, 2009[++] ; Arif & Gaad, 2008[-]).
- Teacher attitudes are central to how effectively students with special educational needs can access the curriculum (Rix *et al*, 2006[+]).
- Tools are generally considered useful in helping students with special educational needs access the curriculum, such as aids to help visually-impaired students (Dart, 2007[+]; Douglas *et al*, 2009[++]) or hearing-impaired (Marschark & Spencer, 2009[++]), or to help students develop social and life skills (Ee & Soh, 2005[-]).
- The benefits of ongoing curriculum adaptation, however, remain unclear (Bottge *et al*, 2007[+]; Doole, 2008[-]; Yu *et al*, 2009[++]).
- Individual education plans (IEPs) can make school experiences of parents and students with special educational needs more positive, are a useful focus for communication between staff, parents and students (Fish, 2008[+]; Keyes & Owens-Johnson, 2003[+]; Martin *et al*, 2004[+]), and can support planning (Piggot-Irvine, 2009[-]), and alignment with national or state standards (Thompson *et al*, 2005[+]).
- IEPs can also help target-setting and assessment of students (Maddison, 2002[-]; McNicholas, 2000[+]), but behavioural goals within IEPs need to include appropriate and planned responses (Van Acker *et al*, 2005[+]).
- Approximately 40 per cent of the difference in individual student performance may be due to differences in goals set in their IEPs (Roach & Elliott, 2006[+]), but it is unclear whether this reflects baseline differences or improved outcomes caused by the IEP.

- Developing IEPs can be resource intensive and lack of resources can be a barrier to their use (Stroggilos & Xanthacou, 2006[-]).
- Teachers are not always aware of the contents of a student's IEP (Bulgren *et al*, 2002[+]) and the development of IEPs can be a negative experience for students and parents (Fish, 2008[+]).

Knowledge gaps

- With one or two notable exceptions (Roach & Elliott, 2006 for instance), we found few robust evaluation studies providing unequivocal evidence or explored whether IEPs improve educational outcomes.
- No studies were found that explored the best way for schools to develop and use IEPs, or what the most effective components of IEPs might be, so it is unclear how best to make use of limited resources in this context.

A central principle for giving students with special educational needs full access to the curriculum is that delivery needs to be flexible and tailored to the needs of the individual student (Alberta Education, 2009[+]). IEPs are widely used as one way of documenting the modifications each student needs.

Arif and Gaad (2008[-]) found the curriculum used for special educational needs pupils in Dubai is a "para-curriculum", based on the assumption that special educational needs students are unable to manage the regular curriculum. Although the same textbooks are used, adaptations such as changing or deleting difficult chapters are encouraged, but implementation of such strategies varied widely between teachers.

Bottge *et al* (2007[+]) assessed the effects of Enhanced Anchored Instruction (EAI), using problem-solving approaches to teach mathematics to 100 adolescents in the US with specific learning disabilities in this subject. Students had a range of disabilities, including learning disabilities, emotional or behavioural disabilities, cognitive or speech disabilities, and other conditions affecting classroom performance, such as ADHD. EAI teaching included reviewing problems from the previous day before explaining new concepts, and encouraging independent or pair-working. Students were assessed before the study and at regular intervals during tuition. Findings suggested that students' problem-solving performance improved during the programme, but gradually declined over time, and results were mixed on the computation test.

Doole (2008[-]) reported a case-study of the Clifford Park Special School in Australia, a school of 86 students with intellectual impairments (frequently in combination with other conditions such as visual or physical impairments). Teachers and other staff reassessed the content and delivery of the existing Human Relationships Programme, aimed at promoting better health and wellbeing for young people with disabilities. Changes were made to update the curriculum, putting more focus on health, wellbeing and drug education. In addition units of the curriculum were standardised with unit outlines to ensure consistency of content. The report did not state the outcomes of these changes.

Conclusions from Rix *et al*'s (2006[+]) international literature review emphasised the teacher's significant role in shaping interaction and enhancing learning opportunities

in the classroom. Teachers who see themselves as responsible for fostering the learning of all their students promote higher order interactions and engage for longer with their students with special educational needs. In contrast, teachers who consider that others are primarily responsible for such learning tend to have lower-level, non-academic interactions with these students. The review also concluded that learners can best access the curriculum when interacting with others, and when prior knowledge is used as a basis for future learning to build upon. In contrast to the traditional teaching model of teachers “telling” and pupils listening, Rix *et al* suggest the teacher’s role should be to invite and build on the learner’s responses, and challenge reflection through the elaboration of meaningful problems for the learner that require critical awareness and skill.

Yu *et al* (2009[++]) explored the secondary school experiences of students with mental retardation in the US. For vocational classes, most students with mental retardation received the same tuition as the rest of the class. When they were offered separate special educational needs teaching, they were more likely to have small-group instruction, individual instruction from a teacher, to participate in field-trips and other activities, and to respond orally to questions than in mainstream classes. On standardised tests, almost all the students with special educational needs had scores below the norm, and on assessment subtests had mean standard scores more than 2 standard deviations below the norm. Because the study did not compare participating students with a control group, it is difficult to say whether the achievement results would have been worse without the additional support.

A number of studies identified strategies and tools to help students access the curriculum. Douglas *et al* (2009[++]) reviewed the international literature on best practice models and outcomes in the education of blind and visually impaired children. They concluded that blind and visually-impaired young people needed access to additional curriculum that could promote mobility and independence, social and emotional inclusion, use of ICT, and low-vision training. Particular problems faced by post-primary pupils with visual impairment include social isolation if they are limited in the activities they can engage in with friends who are becoming more independent; that ICT and access technology, including screen magnifiers, screen readers and low vision aids, can help pupils to access information more rapidly, but require specific training in their use. They recommended that professionals should develop teaching strategies structured around alternative or enhanced ways of presenting and communicating the curriculum, in particular to give additional time for doing this and for accessing additional curriculum areas such as Braille reading. It was also important to ensure that the child’s optimal print size is assessed, and that students are also taught to use low vision aids effectively to increase their access to print; to provide services to facilitate personal development such as assertiveness training and communication skills, in particular during transition times and if vision is deteriorating; and to supply technology such as screen magnifiers and screen readers, with appropriate training in their use, and with teachers using the technology to support their teaching of particular curriculum areas.

Dart (2007[+]) also identified useful tools and strategies to increase curriculum access for visually-impaired students in Botswana. The main barrier was the lack of adapted teaching and assessment materials (mainly Braille resources, but also talking books and the means to play them) and sometimes teacher reluctance to allow students the chance to take certain subjects at senior level. Teachers expressed frustration that, for some of their pupils, curriculum content was too great and too complex, and that methods of assessment did not allow the children to demonstrate the skills they did have. This was thought a particular problem in subjects such as art, design and technology, and agriculture (Dart, 2007[+]).

Marschark and Spencer (2009[++]) reviewed the international literature on best practice models and outcomes in the education of deaf and hard-of-hearing children and concluded that many hard-of-hearing children fail to make age-appropriate progress using orally-focused approaches to education. Cued speech has not been consistently found to improve literacy skills and there is insufficient evidence to know whether auditory-verbal therapy is an effective educational strategy. Simultaneous communication using speech and signing together can be as effective as other forms of communication at post-primary levels.

Ee and Soh (2005[-]) found teachers in China thought there was a need for a more functional and comprehensive curriculum for enhancing the independence and employability of post-primary students with special educational needs. Topics not currently covered in the school curriculum but considered important included work attitudes and skills, problem-solving skills for independent living, social interactive skills for boy-girl relationships, moral values, and developing consumer/work skills to enhance students' employability. Providing hands-on experience, on-job training, visiting work areas and job attachment as some essential elements in ensuring that students' learning is transferable and generalised to other settings.

Rose *et al* (2007[+]) investigated the amount of education time spent on leisure or physical activities by US students with severe intellectual or physical disabilities. Participation and leisure activities have been identified as important for pupils with and without disability, and US post-primary schools have been advised to provide comprehensive instruction. Leisure activities included participation in activities that promote leisure awareness, skills and self-determination, including learning support skills to help them function independently in these areas. Physical activity is participation in activities that promote, teach or involve physical fitness. Rose *et al* found students who spent more time on leisure and physical activity were more likely to have teachers with more positive attitudes towards special education provision and who reported having had training in how to deliver education on leisure and physical activity. Other special education teachers provided the recommended duration of teaching, but prioritised other more academic curriculum domains to the potential detriment of leisure and physical activity education.

3.2.3.1 Individual educational plans (IEPs)

IEPs are widely used, commonly discussed in the literature, and account for considerable amounts of general teacher and SENCO time. Ideally, such a key strategy would be

supported by a substantial evidence-base showing that the resources required in developing, monitoring and assessing IEPs yielded improved outcomes. At post-primary level, where teaching is disparate across the curriculum, there is great potential for IEPs to offer a co-ordinated approach to delivering an appropriate curriculum, tailored to individual student needs.

An important role of IEPs is to act as a focus for multidisciplinary communication and planning for students with special educational need. One US study examined the perceptions of 1,638 secondary IEP team members including students from almost 400 teacher-directed IEP meetings. The authors found that all participants in the planning meetings benefited if students attended (Martin *et al*, 2004[+]). The study highlighted the poor baseline knowledge and understanding among participants. Students were least likely to know the reasons for the meeting, what they needed to do, to have understood what was said at the meetings, and were more uncomfortable about saying what they thought in the meeting. Although SENCOs had a good understanding, general education teachers were only slightly more knowledgeable than students about what they should do next. Students only attended 70 per cent of their IEP meetings, but when present parents were significantly more likely to report that they knew the reason for the meeting, felt comfortable expressing their thoughts, understood better what was said and knew more about the next step. General educators were also more comfortable expressing themselves and understood better what came next after meetings students had attended. When general educators attended the meetings, other participants talked more, especially about student strengths, felt more empowered to make decisions, knew better what to do next, and were generally more positive about the meeting.

Some studies reported other positive effects associated with IEP use, although no studies were identified that linked them with improved attainment outcomes for students with special educational needs. Fish (2008[+]) found most of the 51 parents of such students in a US survey had positive experiences of IEP use. Almost half agreed that student objectives were thoroughly discussed during the IEP meetings. Most also agreed that teachers had enough knowledge about special education law to serve their children effectively during the IEP process. Three-quarters of parents agreed that IEP team members maintained positive relationships with them during these meetings. More than half of parents agreed that IEP meetings benefited their children, and most indicated not only that their overall involvement had positively influenced the meetings but also that their decisions influenced outcomes.

IEPs are often used as a basis for target-setting and assessment. One study found that close linking of IEPs and lesson plans with combined target setting and evaluation for planning the following lessons could lead to effective curriculum-based assessment. The process was facilitated by use of home-school books as part of a two-way process through which parents and teachers kept each other informed of key circumstances and changes (McNicholas, 2000[+]). Similarly, Maddison (2002[-]) reported on the introduction of an outcome- or target-based curriculum in a school where every student had an IEP. Targets were assessed per subject and linked to the students' IEPs. The curriculum was designed in advance to include differentiated goals and assessment.

Person-centred planning (PCP) methods have been used to assist parents and professionals in IEP creation or revision. Keyes and Owens-Johnson (2003[+]) found key to PCP was the understanding that the pupil's immediate network of friends and family provided the support necessary for positive improvements to occur. Two frequently used methods of PCP are making action plans (MAPs) and essential lifestyle planning (ELP). MAPs emphasises student involvement, and engage with parents, friends and educators to identify challenges and how they can be addressed. ELP focuses on the individual, who is encouraged to express wishes in terms of those that are non-negotiable, highly desirable or strong preferences, in order to create a customised action plan for the future. Keyes and Owens-Johnson (2003) concluded that although education staff expressed initial concern at the time and effort required to implement PCPs, after implementation they reported positive reactions from parents and students, alongside benefits outweighing the initial time outlay required. Reported outcomes included greater satisfaction and efficacy while using PCP strategies.

IEP goals have been shown to have some effect on performance of students with significant cognitive abilities. Roach and Elliott (2006[+]) aimed to understand the influence of access to the general curriculum on the performance of 113 students with cognitive disability (84 per cent), orthopaedic problems (10 per cent), other health impairments (6 per cent), visual impairments (5 per cent), and hearing impairment (4 per cent). Overall, 41 per cent of the variance in students' attainment in reading, language, and mathematics was found to be related to the number of IEP goals that had an academic focus, student grade level, teacher reports of students' curricular access, and time spent in general education settings. In other words, students who had curriculum and instruction that focused on the general curriculum, performed better on reading, language and mathematics attainment scales.

Other studies we found on IEPs focused on problems in their development and use. These concerns were focused on the high level of resource needed to develop and maintain them; the lack of confidence in non-specialist teachers about their use, and the problems when there is insufficient SENCO support; and the difficulties in co-ordinating the input from students, parents and the multidisciplinary team.

Stroggilos and Xanthacou (2006[-]) studied IEP development for ten students with profound and multiple learning difficulties. In most cases the plan was developed in a multidisciplinary context but with the teacher drawing on written reports from other professionals rather than by a collaborative approach. Targets were therefore usually not agreed between teachers and other professionals. Teachers believed that parents could contribute to the IEP development but tended to exclude them from this process because of lack of time for regular meetings. Annual review meetings tend to take place during school hours and often in inappropriate rooms. Professionals other than the teacher and parents, such as physiotherapists, are unlikely to attend. Even when parents are present, they tend not to be directly involved in designing the IEP. Bulgren *et al* (2002[+]) found that the ten parents of students with disabilities in the US they interviewed tended to report that general education teachers were not always aware of the contents of their child's IEP. This was exacerbated by little co-ordination or co-operation between special needs or general education teachers.

Van Acker *et al* (2005[+]) evaluated 71 functional behaviour assessments (FBAs) and behaviour intervention plans (BIPs) for students with special educational needs in the US who have challenging behaviour. These assessments and plans are often incorporated into IEPs and are required to comply with federal mandates. The IEP team must develop them, but students were only involved in developing 20 per cent of FBAs or BIPs. Targeted actions to prevent the undesirable behaviour need to be appropriate – for example, suspension from school is an inappropriate response to a student who skips class because of an inability to do the assigned work. However, only half of plans specified positive behavioural supports to encourage desired behaviour, rather than aversive punishments for undesired behaviour.

Fish's (2008[+]) study of seven parents of children with autism in the US reported that their initial IEP experiences had been generally negative, such as feeling blamed for their child's problems, and disagreement over which services should be provided. One parent reported that IEP use led to her son being removed from general education and being placed into a transition unit where he "became suicidal". A second parent reported that she was refused the opportunity for her son to interact with the general education groups at his school because they did not have adequately trained staff. Parents said they were made to feel they were being unreasonable by requesting services the school considered were unnecessary or too expensive. Parents believed that the formality and rigidity of IEP meetings created barriers to implementing necessary changes to educational programmes. Teachers were thought to delay updating IEP goals to avoid having to make lesson plan adjustments.

In conclusion, there is very little evidence underpinning the use of IEPs to improve student outcomes or curriculum access, although they may be useful in improving communication. Further research investigating the effects of IEPs on outcomes such as attainment and satisfaction would be welcome.

3.2.4 Curricular pathways and options

Summary of the evidence

- No non-Irish studies were found that evaluated the effects of different pathways on post-primary students with special educational needs.

Curricular pathways are options for how different curriculum components can be combined, in what order and over what timeframe, to adapt the content to students with different abilities and needs. The pathways students take reflect their schools' programmes, as well as individual student choice⁵⁵. We identified very little evidence on the effects of different curricular pathways. Practices that are, or are not, discussed in the literature, however, do not necessarily represent what is actually used in day-to-day classroom practice. For instance, given the relative ease of its implementation, adaptation by pace is probably more common in reality than in the evidence base – where students progress at different rates through a standard curriculum.

55 As, for example, in this report on Leaving Certificate Applied from NCCA: <http://www.ncca.ie/uploadedfiles/LCA.pdf>

The risk of providing an appropriate curriculum for the extremes of ability within a class is that the majority group of average-ability students are unable to progress at an appropriate level. Differentiation by level or pace can improve access to the curriculum by allowing students with special educational needs to follow the general (unmodified) curriculum at a pace they find comfortable. In general, for students with learning impairment, this will involve allowing an extension of time for study or assessment.

3.2.5 Assessment and certification

Summary of the evidence

- Effective instruction for students with special educational needs requires regular assessment and evaluation (Li *et al*, 2009[+]; Mid-Continent Research for Education and Learning, 2000[-]; Yeh, 2006[-]), and students with special educational needs may receive more feedback than those without (Newman, 2006[+]).
- It is important that assessment should measure meaningful outcomes, not just those that are easy to measure (Maddison, 2002[-]), and a wide range of tools are available for assessment (Kontu & Pirttimaa, 2008[+]). However, specialist tools for assessing students with specific special educational needs such as visual impairment may be scarce (Douglas *et al*, 2009[+]).
- Barriers to using these tools include a lack of time or resource (Arthaud *et al*, 2000[+]; Li *et al*, 2009[+]), and accommodation for students with special educational needs may just mean allowing them extra time for their assessment (Yu *et al*, 2009[+]).
- There is some concern that assessing students with special educational needs using different methods or tools from those used for students without could be unfair on the latter (Brackenreed, 2004[+]), or may be unfair for the former if they are offered different diploma assessments or final certification programmes (Johnson *et al*, 2007[+]; MacBeath *et al*, 2006[+]; Nelson, 2006[+]).

Knowledge gaps

- No studies were found that assessed the impact of using the same tools or standards for assessment for students with and without special educational needs on educational attainment or employment options.
- No studies were identified that determined who should assess students with special educational needs, such as class teachers, SENCOs or teaching assistants; how frequently they should be assessed; or what should be measured.

Assessment is crucial to determine areas of particular difficulty and to evaluate progress. Standardised assessments in the form of national examinations and tests at key educational stages are widely used internationally. But to be useful to students with special educational needs, these forms of certification should either have to encompass a very broad range of achievement or offer alternative tests for different ability levels.

As well as standard national certification, regular assessment is also a routine feature to measure progress through the curriculum. Issues with this less formal assessment is

that it is less standardised which means different schools and teachers may use different schemes and tools which do not facilitate communication about students in different classes or as they transfer between schools. A Mid-Continent Research for Education and Learning (2000[-]) report concludes that effective instruction for students with special needs improves through regular assessments and evaluations.

In their survey of all special educational needs teachers of students with severe intellectual disabilities in Finland, Kontu and Pirttimaa (2008[+]) reported that up to 22 different methods or tools were used for assessing post-primary students, both as an initial assessment to devise IEPs, and also as a way of assessing the student's progress. The most widely used tools were those based on developmental psychology and originally intended for assessing autistic children. This paper did not systematically evaluate the appropriateness of the various assessment tools used although the authors raised concerns about whether certain tools (namely those based on a medical tradition) were useful in inclusive education contexts. This is because such assessment tools do not take into account the full range of functioning and experiences considered important in inclusive education.

Brackenreed (2004[+]) reported on interviews with 98 grade nine and ten English language teachers in Canada (who teach children aged 14 to 16). In general, teachers felt that that accommodations made for testing pupils with sensory impairments, or accommodations allowing students to respond in alternative ways, such as providing verbal rather than written answers, did not change the nature of what was being tested and therefore allowed a comparison between the attainment of the student with special educational needs and those without who did not use the test accommodations. Most teachers, however, perceived that alternative test formats that changed the nature of what was being asked, such as reducing the number of items on a page, rewording questions, and teaching test-taking skills, or making other accommodations such as extending time limits, or reading a test aloud, changed the nature of what was being assessed or contaminated the validity of the instrument. As a result, teachers did not feel these adapted tests were a fair assessment of learning outcomes for students with special educational needs (Brackenreed, 2004[+]). Yu *et al* (2009[++]) found modifications to mainstream curriculum in the US were most likely to take the form of additional time to complete tests or assignments for high to moderate functioning students, with low-functioning students likely to receive alternative assessments.

As in many other contexts, it is important that assessment measures important outcomes, rather than what is easy to measure. Clear educational goals and appropriate outcomes-based assessment might be a critical factor helping students with special educational needs to access the curriculum. Maddison (2002[-]) found that outcomes-based assessment could have positive effects on student progression in a UK special school. However, planning systems need to avoid increasing the administrative load of educational staff. Targets were assessed per subject and complemented by IEPs, so the focus was on pupil learning outcomes. All staff were involved in mapping out details, using a bottom-up approach. Most staff agreed that the new scheme was useful to promote student progression, and facilitated the use of differentiation to improve teaching and learning.

Li *et al* (2009[+]) evaluated the “SAME Curriculum Assessment for Learning Effectiveness (SCALE)” in students with mild to severe intellectual disabilities, physical and multiple disabilities and visual impairment in nine Hong Kong special schools. SCALE is an assessment package designed to measure a child’s progress objectively and allows the setting of measurable targets. It can also serve a similar function as the public exams, since special schools can use this as an indicator to show progress or performance of students with special educational needs. Some schools reported that before this model was introduced they did not expect students at the lower end of ability level to learn science-focused topics such as energy, which could be interpreted in terms of fire and light for them. Following the suggested framework, however, enables all students at a particular key stage, no matter the attainment level, to access this kind of topic. A rise in confidence and self-esteem was observed and teachers could use the tool to share a common language in discussing student performance and progress within and between schools. However, the model also imposed several challenges, in particular the resources needed to enter and maintain the data. Intensive staff training was important for quality control in the project’s development and design.

“Rapid assessment” is another assessment programme focused on curriculum outcomes and is designed to enable teachers to identify where students need additional help before it becomes a problem and to give rapid feedback to the students. Yeh (2006[-]) reported that staff from eight US schools (four of which were post-primary) who used Rapid Assessment said it had positive effects on the self-esteem, motivation and engagement, and achievement of all school students, with particular benefits in increasing achievement and reducing stress for students with special educational needs. Teachers of special education and emotionally or behaviourally disturbed students believed Rapid Assessment programmes helped them to handle the logistical task of meeting the needs of different students (p647). The improved student motivation was because of the individualised curriculum, rapid feedback of results, and opportunities for students to feel successful; and having more control over their learning, which students found enjoyable. Improved student motivation reportedly reduced behavioural problems and led to improved reading and mathematics achievement, with about 80 per cent becoming able to read independently, work independently on maths problems, or perform self-assessments.

Arthaud *et al* (2000[+]) surveyed 800 special educational needs teachers in four Midwestern US states to assess the usefulness and frequency of use of standardised and informal reading assessment practices, and the frequency of use of a range of reading instructional techniques. They found several reading assessment practices highlighted as effective by the literature are rarely used by special educational needs teachers, particularly in the use of non-traditional (although validated) assessment practices. These teachers used informal assessment procedures more frequently than standardised tests, with nine of the ten most frequently used tests classed as “informal” and scored as “useful” by respondents. Effective assessment tests were used more routinely in primary education than in post-primary settings. For example, direct skills instruction (direct teaching rather than classes involving pupil participation); teaching using phonics methods; literature basals; traditional basals; language experience; and repeated

readings were all used more frequently with younger pupils than those in secondary education.

Douglas *et al* (2009[++]) reviewed the international literature on best practice models to help blind and visually impaired children access the mainstream curriculum in their report for the NCSE. The authors suggested that professionals should be cautious about using and interpreting mainstream assessment tools for students with visual impairment, and should use specialist procedures where appropriate, such as assessing Braille reading. The review authors specifically recommended that teachers should refer to the procedures described by the Irish Advisory Group on Reasonable Accommodations (AGRA, 2007) when considering the public examination access needs of pupils with sensory needs.

A particular issue receiving little attention in the evidence reviewed here was whether different diploma options affect a student's access to curriculum. Johnson *et al* (2007[+]) reviewed high school certification (diploma) options for youth with disabilities across all 50 US states. Some states require students to pass minimum competency examinations to graduate, with accommodation for students with disabilities including exemption from the testing programme, and use of different standards or tests. These "high stakes" tests, however, which can have lifelong consequences for the student, have been criticised for being unfair or unreasonable for those with special educational needs. Johnson *et al* (2007) found that there were various diploma options available to students with disabilities across the US, including certificates of completion or attendance, IEP diplomas and occupational diplomas. Although some changes in availability occurred over time, there continued to be an array of diploma options available to students with disabilities. These may or may not benefit students with respect to future opportunities for post-secondary access and employment. Options for students who do not pass high-stakes exit exams include scoring options and testing options. Nelson (2006[+]) also noted that although "high stakes" testing could improve exposure to the general curriculum because of increased work to prepare for the tests, parents and educators surveyed were concerned that such tests could increase stress for the student and limit their broader subject selection. Given the potential for students with special educational needs in Ireland to pursue different certification options, the consequences of various certification options on student outcomes could be an area of future research.

Goal and assessment restructuring appears to be relatively common in the US. An earlier survey of all state directors of special education there⁵⁶ found improved numbers of students with special educational needs meeting grade level proficiency. This is due in part to better alignment of IEPs with standards, increased access to standards-based instruction and improved professional development (Thompson *et al*, 2005[+]). Most states offered assessments based on alternative achievement standards for students with an IEP for significant cognitive disabilities. Newman (2006[++]) reported that 37 per cent of their nationally-representative sample of US students with special

56 In the US, each state has a director of special education responsible for implementing state and federal statutes and regulations as well as supporting a balanced system of accountability with a focus on results for every child. <http://www.nasdse.org/AboutNASDSE/LetterFromOurPresident/tabid/404/Default.aspx>

educational needs receive more frequent feedback from general education teachers than do mainstream students. In addition, 30 per cent have general education teachers who modify grading criteria for students with learning disabilities. Modification of exams might be important where “high stakes” testing is in place.

MacBeath *et al* (2006[+]) concluded that curriculum and testing pressures, particularly at key stages, can lead to marginalisation of students with special educational needs in England. A need to maximise test results for school performance assessment means such students may be “disapplied” either formally or informally from taking the standard assessment tests. One potential way to avoid this is to involve parents in setting targets and planning appropriate examination entry. Kane *et al* (2003[+]) found parent involvement in target-setting in Scottish schools should be about participation rather than collaboration, with parents given the opportunity to comment on targets set by the school.

3.2.6 Staff and training

Summary of the evidence

- Multiple studies reported teacher concerns at their lack of training on how to teach students with special educational needs (for example, Loreman, 2001[+]; Martin *et al*, 2001[+]; McNicholas, 2000[+]; Murry & Murry, 2000[+]; Piggot-Irvine, 2009[-]; Smith & Thomas, 2006[+]).
- Effective teacher training helps them to deliver an appropriate curriculum (Dyson & Millward, 2000[+]; Murry & Murry, 2000[+]) and can improve educational outcomes in students (Piggot-Irvine, 2009[-]).
- SENCOs working within schools can support class teachers and students with special educational needs (Angelides & Aravi, 2007[+]; Dymond *et al*, 2006[+]; Humphrey & Lewis, 2008[+]; King & Youngs, 2003[+]; MacBeath *et al*, 2006[+]; Marschark & Spencer, 2009[+]; Milton & Forlin, 2003[-]; Wilson & Michaels, 2006[+]).
- Adequate levels of input from SENCOs may not be available to support students with special educational needs (Bulgren *et al*, 2002[+]; Newman, 2006[+]) or teachers (MacBeath *et al*, 2006[+]; Mariage *et al*, 2009[+]).
- Input from SENCOs can have a positive effect on skills of class teachers (Angelides & Aravi, 2007[+]; Humphrey & Lewis, 2008[+]; King & Youngs, 2003[+]; Milton & Forlin, 2003[-]); on basic student skills such as reading and writing (Wilson & Michaels, 2006[+]); on specialised skills such as signing for hard-of-hearing students (Marschark & Spencer, 2009[+]) and on social skills and behaviour of students (Dymond *et al*, 2006[+]; European Agency for Development in Special Needs Education, 2006[+]).
- Employing teaching assistants to fill gaps in teacher resources to provide extra support for individual or groups of students with special educational needs can have positive outcomes (Rix *et al*, 2006[+]) but can also mask an overall lack of teaching resource (Humphrey & Lewis, 2008[+]; MacBeath *et al*, 2006[+]).

- The DISS project showed that requiring teaching assistants in England and Wales to have a direct teaching role with students with special educational needs seems to reduce student attainment. This was thought to be because student interaction with the teaching assistant was often at the expense of interaction with the teacher. Teaching assistants were less able than teachers to promote learning, thinking and understanding in the students, tended to focus on completing tasks and might not have fully understood the concepts they tried to convey (Blatchford *et al* 2004[+]; Blatchford *et al* 2009[+]; Rubie-Davies *et al* 2010[+]).
- Other studies have also concluded that teaching assistants can restrict learning if they are not aware or skilled in a full range of options (Herold & Dandolo, 2009[-]; MacBeath *et al*, 2006[+]) and their use can be stigmatising for students with special educational needs (Broer *et al*, 2005[+]).
- Use of peer groups is recognised in the research literature as a legitimate response to issues of staff and training. Using peer groups to mix students with and without special educational needs can improve the social interactions and perceptions of both groups (Griffiths, 2009[-]; Nind *et al*, 2004[+]) and may increase student confidence (Nind *et al*, 2004[+]).

Knowledge gaps

- We found no studies that determined an appropriate level of training for class teachers on special educational needs.
- No studies were identified that determined an appropriate level of input for SENCOs, their effect on overall educational attainment for students with and without special educational needs, how much training they should have; or how they might most effectively be used to support the former.
- No studies were found that assessed how peer groups might best be used, and which subjects or activities are best taught using peer groups.

The successful design, development and delivery of the curriculum to all pupils depends on an effective teaching and support staff. A subgroup of studies reported on issues about the best way of using different staff members to maximise access to the curriculum for post-primary students.

3.2.6.1 Training

In most studies, teaching and support staff attitudes were very positive towards supporting students with special educational needs in mainstream schools. A central concern of general teaching and support staff, however, is their lack of suitable training in delivering a full curriculum to students with a wide range of emotional, behavioural, learning and physical disabilities and problems. This highlights the need for specialist training on how best to deliver the curriculum for students with different types and degrees of special educational needs so that lesson adaptation can be planned appropriately (Smith & Thomas, 2006[+]).

Several UK studies highlighted the lack of specialist training on special educational needs offered to general teachers, and the lack of confidence many have in their ability

to deliver a differentiated curriculum as a consequence (Herold & Dandolo, 2009[-]). Wheeler *et al* (2008[-]) noted the mismatch between the needs of students with attention deficit hyperactivity disorder in England and staff training. Only 12 per cent of surveyed schools reported having received any relevant training on ADHD, although most had requested further training and support. A survey of 114 schools across 72 local education authorities in England and Wales reported that about a third of teachers held no special educational needs qualification and teachers commonly reported on the lack of available training. A common complaint from interviewees was the dearth of specialist full-time courses and “top up” in-service training (INSET). More than 70 per cent of respondents said they required further training in assessment (McNicholas, 2000[+]).

Lack of training on adapting the curriculum for students with special educational needs is clearly an international problem. Loreman (2001[+]) found teachers in Australia felt under-skilled, under-trained, and pushed for time when it came to educating students with disabilities. Many teachers did not modify curriculum standards for the subjects they taught, largely because of their need for training and expertise. Similar concerns about lack of training were expressed by teachers in the US (Martin *et al* 2001[-]; Murry & Murry, 2000[+]), New Zealand (Piggot-Irvine, 2009[-]), Ghana (Ocloo & Subbley, 2008[-]), Botswana (Dart, 2007[+]), Macao (So, 2005[-]), and the United Arab Emirates (Arif & Gaad, 2008[-]). Teachers in Greece reported that the challenges related to ability to deliver the curriculum to students with special educational needs was a main cause of job-related stress (Kokkinos & Davazoglou, 2009[-]).

Skills deficiencies can be systemic when a new policy is introduced. For instance, Martin *et al* (2001[-]) reported on the introduction of the Individuals with Disabilities Act 1997 (IDEA) on US schools in rural areas. They reported that a lack of qualified personnel presented a challenge to providing adequate special educational needs services. This in turn led to difficulties in finding qualified personnel to conduct the necessary assessments; linking annual goals to the general education curriculum; employing behavioural strategies; and generally providing the services needed by students with disabilities.

Several studies reported on strategies to support appropriate training. Dyson and Millward’s (2000[+]) study of comprehensive schools in the UK found an emphasis on the professional development of staff as a means of embedding responses to diversity in the ordinary classroom, with a focus on training in differentiation and establishment of collaborative relationships between special needs and general teaching staff. Training in specific differentiation techniques, such as web-based lesson development programmes, has been found to improve teacher confidence in using new technologies and strategies, and could reduce time needed to plan lessons. The use of one such tool, to develop lessons derived from measurable student goals and objectives, activities linked to the goals and objectives, and quizzes that assess the stated learning to take place, reduced the average lesson development time from 347 minutes to 55 minutes in one US study (Murry and Murry, 2000[+]).

Effective teacher training requires financial assistance and resources to fund the initial training and to support the changes in practice that should result. One study in New

Zealand found a programme of professional development of special needs staff through action research and action learning changed teaching practice, generated improved social interaction and academic achievement for students, and positively changed values and attitudes of students and teachers (Piggot-Irvine, 2009[-]).

3.2.6.2 Co-teaching and specialist staff (SENCOs)

A second theme arising from the literature is the different roles taken by a range of teaching and support staff, and how a multidisciplinary approach might best be used to deliver the curriculum. The main strategies included the use of co-teachers, where a second teacher works with students with special educational needs alongside a general teacher in one classroom; specialist SENCOs, and teaching assistants.

Additional teachers and teaching assistants are commonly used to support students in the classroom, but limited resources restrict how much support can be given this way. Newman (2006[+]) found that students with learning disabilities in the US were twice as likely as their peers to receive individual instruction from an adult other than the teacher, such as a special education teacher, but that even so, this was only provided for 12 per cent of students with special educational needs.

The European Agency for Development in Special Needs Education (2006[+]) thematic publication on provision in post-primary education found co-operative and collaborative teaching was an effective core factor at post-primary level. It was found to provide additional support for student and teacher within the classroom and promote problem-solving to reduce undesirable behaviour by implementing class rules developed by the whole class and communicated with parents.

The effects of co-teaching were explored by Dymond *et al* (2006[+]), who evaluated the implementation of Universal Design for Learning (UDL) approach to developing a high school science course in the US. Development of this empowered the class teacher to direct the instruction of students with special educational needs by co-teachers or other paraprofessionals. The co-teacher role changed from adapting the curriculum during class sessions, towards co-planning lessons, co-delivering the curriculum, and working with small groups of students with and without special educational needs. The main benefit for students was an improvement in social skills and increased interaction with others. Because the UDL curriculum is designed to meet the needs of any learner, the co-teacher's role can be more of a general educator rather than an adapter of the curriculum (Dymond *et al*, 2006[+]).

Co-teaching has also been used to offer specialised teaching via sign language for hearing-impaired students, a strategy found to be as effective as small class tuition as long as teachers are adequately trained and sensitive to students' visual needs (Marschark & Spencer, 2009[+]). A similar strategy has been used to improve reading and language skills in the US, where using co-teachers to deliver the curriculum using a range of instructional styles and individualised assistance were considered by students to have helped them improve reading and writing skills, although no data were reported to confirm this belief (Wilson & Michaels, 2006[+]).

Reform 94 legislation in Norway gave statutory rights of access to foundation courses at upper-secondary level for all students completing lower levels, but which also allowed for achievement at a lower competence level as well as study or vocational competence. Markussen (2004[+]) followed 777 16-year-old upper-secondary students in Norway with special educational needs, who attended either special or mainstream classes as part of this legislative reform. After five years, one-quarter of normal ability students, half of students with special educational needs in ordinary classes, and over three-quarters of students with special educational needs in special classes had achieved competence at a lower level, with the rest achieving either study or vocational competence. Study competence allows progression to further education at universities or other higher education institutions. Vocational competence is the conclusion of training for occupations such as plumbing, carpentry or some health work, and may have involved an apprenticeship as well as basic schooling. Provision of additional support from co-teachers, the class teacher or teaching assistants did not significantly increase attainment. There was actually a reduction in academic and vocational achievement when the student had greater assistance and support after adjusting for other factors. Markussen speculated that this might be because the additional support tended to be in the form of more of the same, trying to improve weak areas rather than building up stronger areas.

A study of one post-primary school in Cyprus found increased collaboration between teachers, including the exchange of ideas and material, led to increased differentiation and improved teachers' attitudes towards special educational needs (Angelides & Aravi, 2007[+]). A scheme to co-ordinate teaching teams to improve reading skills in middle school students at risk of low attainment in the US found that group planning meetings did not occur consistently in every school (Mariage *et al* 2009[+]).

SENCOs and other specialist teaching staff are widely used to support general staff and co-ordinate the education of students with special educational needs. King and Youngs (2003[+]) found special educational needs teachers were often used in the US to help general teachers deliver an adapted curriculum for students with special educational needs. This was possibly in answer to teacher concerns about the extra time required for preparing lessons and their own lack of skill in accommodating these students. The specialist teachers seemed to help foster inclusive environments, such as through modelling appropriate instructional techniques.

Humphrey and Lewis (2008[+]) found that a crucial communication channel in secondary schools in England catering for students with autistic spectrum disorders was between the SENCO and the subject teachers. Many subject teachers believed they lacked the "specialist knowledge" to enable them to provide effectively for these students. Communication strategies implemented by SENCOs included in-service training (INSET) sessions, developing and sharing IEPs, recording messages in daily staff bulletins. One school implemented a "yellow book" system – where each student with autistic spectrum disorder had a yellow booklet that went to each teacher containing a detailed profile of strengths and difficulties and suggested teaching and learning strategies. This booklet also contained space for both the SENCO and subject teachers to

write notes throughout the year, to generate and share the knowledge being developed about the student.

A similar role to SENCO was developed in an Australian secondary school. Here, the school support officer learning difficulties (SOLD) supported students with special educational needs within regular classes, worked with teachers to develop the IEP and offered structured support and professional development to general teachers (Milton & Forlin, 2003[-]).

Some problems and concerns about the level and appropriateness of support from SENCOs was also discussed. Bulgren *et al* (2002[+]) found teachers surveyed in the US spent only 12-24 minutes a week in collaboration with specialist special educational needs teachers. Teachers believed that contact and collaboration with these specialists was beneficial. However they reported reluctance and hesitation to have another teacher in their classroom.

MacBeath *et al* (2006[++]) found support from SENCOs in English secondary schools often hinged on learning needs and co-ordination of support. But this rarely seemed to prepare secondary staff for the complexity of learning and behavioural needs that had to be addressed in their classrooms. SENCOs were usually central to co-ordinating student transition from primary to post-primary settings.

3.2.6.3 Non-specialist support staff (teaching assistants, learning support assistants)

We identified three reports that presented findings from the Deployment and Impact of Support Staff (DISS) project in England and Wales (Blatchford *et al* 2004[++]; Blatchford *et al*, 2009[++]; Rubie-Davies *et al*, 2010[+]). The researchers systematically observed the behaviour of 8,200 pupils in 27 primary and 22 secondary schools in England and Wales, 45 per cent of which had special educational needs and were receiving School Action or School Action Plus/statements. The study found many positive effects of teacher assistant (TA) involvement in secondary schools. But it concluded that those who received the most TA support made less progress than similar pupils with less TA support, even after controlling for pupil factors that might confound the relationship, such as prior attainment and level of special educational needs (Blatchford *et al*, 2009[+]).

The DISS study found that involvement of TA support staff resulted in a rise in overall individualised attention and teaching for students with special educational needs, improved classroom control and reduced teacher time spent managing behaviour, and increased engagement of students who had a more active role in interacting with adults. However, TA input was likely to replace teacher involvement with the student rather than being in addition to this. Pupils with no special educational needs spent 90.7 per cent of their adult-child interactions with their teacher, 6.6 per cent of their interaction time with support staff and 2.8 per cent with other adults. In contrast, students with special educational needs experienced 76.2 per cent of their adult-pupil interaction time with their teacher, 22 per cent was with support staff, and 1.8 per cent with other adults. Most (87 per cent) of pupil interactions with teachers were with the pupil in "audience" mode (listening to the teacher talk), while 44 per cent of interactions with support staff were prolonged one-to-one focus. At secondary level support staff presence

significantly reduced the likelihood that pupils with special educational needs would interact with the teacher, (odds ratio [OR] 0.63, 95 per cent confidence interval [CI] 0.52 to 0.76; $p < 0.001$). However, support staff presence at secondary level also significantly increased the overall amount of adult teaching received by all pupils (OR 1.33, 95 per cent CI 1.06 to 1.66, $p = 0.01$), and significantly increased the amount of time all pupils spent being taught by the teacher (OR 1.44, 95 per cent CI 1.16 to 1.77, $p < 0.001$). Support staff also significantly increased the amount of individualised attention received by pupils with special educational needs at secondary level (OR 2.43, 95 per cent CI 1.89 to 3.14, $p < 0.001$), but halved the amount of individualised attention from the teacher received by all pupils (OR 0.56, 95 per cent CI 0.44 to 0.71, $p < 0.001$) (Blatchford *et al*, 2009[+]).

The DISS study found that support staff in the UK spent much of their time in a direct pedagogical role, supporting and interacting with pupils, especially one-to-one, which exceeds the time they spend in assisting the teacher or the school. Teacher interaction with pupils was largely to explain concepts, provide feedback, make links to prior knowledge and promote pupils' thinking and cognitive engagement. TAs were more likely to give inaccurate or confusing explanations, to prompt pupils or supply them with the answers, and were more concerned with tasks being completed than with pupils understanding the learning points. The two overarching differences between TAs and teachers were that the latter focused more on learning and understanding while the former focused more on completing tasks. Teachers appeared proactive and in control of lessons but TAs were more reactive (possibly because they had little input into or preparation for the lesson). TAs did not always appear to understand the concepts they were helping pupils master and did not have enough training to understand how to develop pupil thinking, and could appear to stifle pupil independence. Three-quarters of teachers reported having had no training in how to work effectively with TAs (Blatchford *et al*, 2009[+]; Rubie-Davies *et al* 2010[+]). This may be at least in part because many TAs are not educated to a high level. A questionnaire sent to 40 per cent of all primary, secondary and special schools in England and Wales found that TAs tended to be female (98 per cent), and aged 36 to 50 (59 per cent). Forty per cent of TAs were educated to GCSE level and 60 per cent above GCSE level, although only 15 per cent were educated to degree or higher qualification. Most (92 per cent) of TAs had attended school-based in-service education (Blatchford *et al*, 2004[+]).

In the international arena, classroom assistants who offer educational support to students individually or in small groups under the supervision of a trained teacher are called teaching assistants, teacher aides or learning support assistants. Loreman (2001[+]) found that teachers in mainstream schools in Canada felt that they were under-resourced, underfunded, and pushed for time, and would allocate more money on teaching assistant time if it were available. Rix *et al* (2006[+]) found that teaching assistants can be used effectively within the classroom setting, particularly within group work tasks, and particularly if they were given opportunities to study and be taught effective practices. The presence of a TA allowed some teachers in the UK to avoid the need to differentiate work for students with special educational needs (Humphrey & Lewis, 2008[+]).

We found no rigorous empirical evidence that such TAs improve outcomes for students with special educational needs, and some qualitative evidence that their untutored input can have negative consequences. Reflecting similar findings to Blatchford *et al* (2009 [++]), Emam and Farrell (2009[+]) concluded from in-depth case studies of 14 post-primary students in the UK that there was a lack of evidence of the effectiveness of teaching assistants in the classroom, adding to concerns about their role.

Herold and Dandolo (2009[-]) reported that a visually impaired student aged 13 in the UK valued his one-to-one learning support assistant as a way of enabling participation, especially in physical education, and providing emotional support. On the whole, he appeared to feel very comfortable, safe and at ease when participating in his lessons. The lack of specific training and guidance given to TAs, however, made them feel unsure about aspects of their practice. In particular, the lack of strategies and resources to promote the pupil's independent learning skills resulted in the adoption of a limited range of learning styles, reducing the pupil's variety of learning experiences.

MacBeath *et al* (2006[++]) found many teachers gave students with special educational needs almost entirely into the care of TAs, especially teachers in post-primary schools. Very limited time each week was spent with a specific student. TAs were often regarded as the "experts" although few had any qualification or background in special needs. In the absence of appropriate training, TAs could adopt an overprotective relationship and might try to isolate the student from learning experiences involving larger groups of students. The negative consequences of this attitude were reported by Broer *et al* (2005[+]) who found that the use of TAs to support young adults with intellectual disabilities in the US could be socially stigmatising, especially where the TA expressed a "mothering" attitude to the student. This social stigmatisation in turn had a negative impact on the student's motivation and thus their access to the curriculum, and could make them feel disenfranchised, embarrassed, lonely and afraid.

3.2.6.4 Peer groups

Several studies discussed the effects of incorporating students with special educational needs in groups of students without such needs to help them access the curriculum (for example, Kortering *et al* 2005[+]; McNicholas, 2000[+]; The European Agency for Development in Special Needs Education, 2006[+]).

In a systematic review of ten studies (nine from the US) on classroom approaches to include children with special educational needs in mainstream education, Nind *et al* (2004[++]) found that strategies in which students with special educational needs get involved in group work with their peers can have positive effects on the teacher's awareness and understanding of the social and academic needs of students with special educational needs. It can also lead to improved perceived social interaction. Although the evidence was limited, peer group interactive approaches appear overall to increase co-operative learning and could improve student attitudes towards learning, especially reading, mathematics and language, as well as improving student confidence. Academic work in groups was found to have a positive impact not only on academic performance but also on the social participation of special educational needs students.

Mixing the latter with their peers without such needs can successfully break down social barriers and increase understanding and acceptance between the groups. In the UK, Griffiths (2009[-]) examined the effect of an intervention designed to promote inclusion by combining Year 8 students with special educational needs in mainstream classes with similar students in special schools. The two groups were taught literacy together for three weeks. Initially, the mainstream students with special educational needs had perceived those in the special school to have more severe needs than their own even though they were all being taught to a similar curricular level. Griffiths reported that focusing the mainstream students' attention on things they had in common with their special school peers helped to break down barriers and promote social inclusion.

3.2.7 Transition into and out of post-primary education, and communication between organisations

Summary of the evidence

- Improved communication and co-ordination between schools, students with special educational needs and their parents can improve the transition between stages (European Agency for Development in Special Needs Education, 2006[+]).
- However, studies in the USA have found that the transition out of education is not well planned, however (Tillmann & Ford, 2001[+]; Wasburn-Moses, 2006[-]).

Knowledge gaps

- No studies were identified that provided clear and definitive advice on the best ways to support students with special educational needs as they transition between educational stages.

The European Agency for Development in Special Needs Education (2006[+]) thematic publication on provision in post-primary education reported on the importance of managing the transition from school to employment for students with special educational needs, whose access to full employment can be hindered by prejudice, over-protection and inadequate training and qualifications. The main issues relate to low proportions of students completing secondary education qualifications; the need for students with special educational needs to be offered access to education and training for a full range of employment opportunities, not just low-paid work; high unemployment rates among adults with disabilities; and, for those who do secure employment, issues on the accessibility of the workplace and absent or inflexible implementation of existing legislation on transition to employment. The report recommended improving transition by tightening the implementation and evaluation of co-ordinated policies, efficient planning and use of resources, improving communication with the student and his/her family to understand their wishes and needs and to supply appropriate information; ensuring and funding the development of an accessible IEP that covers transition with the student central to the development process; and encouraging experience within real working environments by organising flexible training and supporting employers to take on young people with special educational needs.

In the US, the Individual with Disabilities Education Act of 1997 (IDEA) required schools to provide transition services for students aged 14 and older which would provide a

co-ordinated and outcome-oriented set of activities to promote movement from school to post-school activities. Tillmann and Ford (2001[+]) evaluated the transition services of IEPs for US high school students and found none was totally compliant with IDEA requirements. Full compliance with transition services would require co-ordination between the school and outside agencies to give students experience of practising skills in the community. They concluded that schools offering transition services needed to provide functional, integrated curricula, with psychological testing that is a starting point for writing IEPs and to identify student needs, and goals and objectives that direct instruction in the classroom and are written to enable assessment of whether or not they have been met (Tillmann and Ford, 2001[+]).

Wasburn-Moses (2006[-]) found US public high school teachers saw a need for better transition planning. Many were working on improving services in this area, and indicated the need for more student options; more training and co-ordination among programmes and staff; more involvement on the part of students, family and staff; and more time. Teachers satisfied with the transition programming at their school felt this was because of support on the part of school and local agencies, and a commitment to addressing transition through required coursework, including student portfolios and assisted job searches.

3.3 Conclusion

The Irish review identified a major gap in the evidence on post-primary curriculum design/development and access to it for students with special educational needs. The international review has also failed substantially to fill this evidence gap.

As with the Irish review, the international evidence base has failed to assess what students with special educational needs should learn; to compare one type of curriculum with another; to evaluate proportionally how much time should be spent in learning specific skills such as life skills, Braille and sign language; or to determine whether the mainstream curriculum meets the needs of particular subgroups of this set of post-primary students or how to adapt the curriculum for them so that their needs are better met.

Major gaps in the evidence persist on how curriculum should best be designed, developed, adapted and delivered for post-primary students with special educational needs. Robust studies that synthesise what is already known about this and evaluate different methods and strategies for improving curriculum and access to it would be extremely useful for the international audience of educators.

As described in Section 1, education policy in many countries is to deliver the curriculum, as far as possible, to students with special educational needs. The feasibility, options for delivery and staff views on this increasing inclusion of students in non-specialist settings is a strong focus of research in this field.

Policy in Ireland is consistent with the views of most stakeholders, namely, that it is entirely fair and equitable that students with special educational needs should have access to a broad curriculum at the post-primary level (NCCA, 2007; section 1.1). Teachers internationally (Schumaker *et al*, 2002[+]; King and Youngs 2003[+]; section 3.2.1) are

generally enthusiastic about providing a broad curriculum for this group, but recognise barriers and issues to successfully increasing access to the full curriculum (Section 2.3.1; Section 2.3.2; Section 3.2.1).

Schools in Ireland (Shevlin *et al* 2002, Section 2.3.1) and internationally (Section 3.2.1) vary in how well they can include students into the main curriculum. Barriers to offering access to a full curriculum in schools in Ireland and internationally include the nature of the subjects and activities (Gray, 2009, Section 2.3.2; Mariage *et al*, 2009[+]; Newman, 2006[+]; Smith & Thomas, 2006[+]; Section 3.2.1); the responsibilities, attitudes and skills of educational staff (for instance Marschark & Spencer, 2009[+], Section 2.3.1; Rose *et al*, 2007[+]; Section 3.2.1); a lack of specialised teaching materials and aids (for example Douglas *et al* 2009[+]; Ring & Travers 2005, Section 2.3.1), and a shortage of staff resources (Moran, 2007, ETI, 2006, Section 2.3.2; Dart, 2007[+]; Section 3.2.1).

This review identified few well-designed research studies that evaluate what works in designing, developing and delivering an appropriate curriculum that facilitates access for post-primary students with special educational needs. This gap in the published evidence on the most effective methods, tools and strategies is a major weakness in this field. It means that effective strategies may not be widely acknowledged and adopted and limited resources might be spent on ineffective strategies. It is also important to note that an absence of evidence that a strategy or resource is effective is not the same as evidence that it is ineffective.

Some evidence exists that a flexible approach to curriculum adaptation and delivery may be beneficial for students with special educational needs, such as following the Leaving Certificate Applied course (Banks *et al*, 2010, Section 2.3.1) or the Universal Design for Learning approach (Dymond 2006 [+]; Section 3.2.1); allowing a longer timespan for completion of the post-primary education (Daly *et al* 2007, Section 2.3.1); or using the internet to deliver an alternative curriculum (Daly *et al*, 2001, Section 2.3.1). The potential benefits of flexibility need to be balanced against the student's need to meet standard criteria for accreditation and certification (Daly *et al*, 2001, Section 2.3.1) and to prevent the adapted curriculum becoming too narrow (Alberta Education, 2009 [++], Section 3.2.1; Blatchford *et al*, 2009[+]; Section 3.2.2).

Effective communication between different educational providers has been identified as important for a positive student experience of transition from one educational stage to the next, such as preparatory visits to the post-primary school before leaving primary education (Maunsell *et al*, 2007, Section 2.3.1; European Agency for Development in Special Needs Education, 2006[+]; Section 3.2.7), or to facilitate links between special and mainstream schools (Ware *et al*, 2009, Section 2.3.1; Abbott, 2006; Section 2.3.2). The transition year itself can also be valued by students with special educational needs, although this again requires a co-ordinated approach if they are to benefit fully (Daly *et al*, 2007, Section 2.3.1).

IEPs are widely considered central to planning a broad curriculum for students with special educational needs, and could be particularly useful in post-primary settings (NCCA, 2007: p6-7; Section 1.1; Fish, 2008[+]; Keyes & Owens-Johnson, 2003[+]; Martin *et al*, 2004[+]; Section 3.2.3). Outcomes-based assessment can help teachers

modify the curriculum to meet individual student needs (Maddison, 2002[-]; Section 3.2.3).

Teachers frequently feel under-trained and under-resourced to support students with special educational needs in mainstream classes (Moran, 2007, Lambe, 2007; section 2.3.2; Loreman, 2001[+]; Martin *et al*, 2001[-]; McNicholas, 2000[+]; Murry & Murry, 2000[+]; Section 3.2.6), and value support from SENCOs and other specialists (Lambe & Bones, 2008; Section 2.3.2). Training for teaching staff can improve their confidence and skills in helping students access the curriculum (Dyson & Millward, 2000[+]; Murry & Murry, 2000[+]; Section 3.2.6) and can improve educational outcomes in students (Piggot-Irvine, 2009[-]; Section 3.2.6).

Evidence supports the view that specialist, trained staff working in schools alongside teachers, such as SENCOs, can support class teachers and help students with special educational needs to access the curriculum (for instance Moran, 2007, Section 2.3.2; MacBeath *et al*, 2006[+]; Marschark & Spencer, 2009[+]; Section 3.2.6) and there is some evidence that such specialist support can improve basic skills such as reading and writing (Wilson & Michaels, 2006[+]; Section 3.2.6); specific skills such as knowledge of Braille and signing (Douglas *et al*, 2009 [++]; Section 2.3.1); as well as social skills (Dymond *et al*, 2006[+]; Section 3.2.6). However, SENCO resources are often limited and individual SENCOs carry a substantial burden (Abbott, 2007, Section 2.3.2; Newman, 2006[+]; MacBeath *et al*, 2006[+]; Section 3.2.6).

Teachers and pupils value special needs assistants in Ireland and teaching assistants in other countries such as Northern Ireland and England for the physical and practical support they can give students with special educational needs in the mainstream classroom, small groups on a one-to-one basis (for instance Daly *et al* 2007, Section 2.3.1; Rix *et al*, 2006[+]; Section 3.2.6). Evidence also shows that use of these non-specialist (and therefore less highly-educated or trained) special needs or teaching assistants can worsen academic outcomes if used in place of direct interaction with class teachers, rather than in an additional, supportive role (Blatchford *et al* 2004[+]; Blatchford *et al* 2009[+]; Rubie-Davies *et al* 2010[+]; MacBeath *et al*, 2006[+]; Section 3.2.6). Similarly, one study in Norway found additional support from co-teachers, the class teacher or teaching assistants did not significantly increase attainment and there was actually a reduction in academic and vocational achievement when the student had greater assistance and support, after adjusting for other factors. This was possibly because the additional support focused on giving more of the same rather than building up areas that were stronger (Markussen, 2004[+]).

A key difference between special educational needs provision in Ireland and other countries is that SNAs do not teach or instruct the students they support. Evidence from this review would suggest that this non-teaching role is a sensible approach for non-trained staff.

The outcomes reported in the studies identified were almost invariably measured by the views of teachers and support staff rather than by validated measures. In addition, very few studies measured the views of students with special educational needs themselves, which seems to be a particular gap in the evidence base when trying to understand the extent to which they are included at school.

The focus of this review is on post-primary education. We found studies in this setting yet in many cases the setting was almost coincidental. The lack of studies that compared the difficulties in offering curriculum at post-primary compared with primary level was disappointing.

Inconsistent research findings may reflect the fact that students with special educational needs are not a homogeneous group. Their needs in the context of education often vary considerably, so single, simple solutions are unlikely to work consistently with all students in this group. Some studies reported data on students with a specific type of special educational needs problem (six of the 32 studies included in the Irish review and 21 of the 82 studies in the international review). But the other studies grouped students with special educational needs of any type, or did not specify the type of problem they had. This may confuse the issues about what is really effective for students with different learning or behaviour problems. It is unreasonable to expect one strategy to work for all students with special educational needs, regardless of type and severity, and unnecessarily defeatist to take the results of studies failing to show a benefit across a group of students with mixed types of special educational needs and interpret this as showing that the strategy is always unsuccessful. The complexity of the issues on curriculum access for students with special educational needs means that traditional research methods such as randomised controlled trials are unlikely to be achievable or desirable. The highly restricted environment that such a study methodology demands is often incompatible with the concept of student and parental choice, or with curriculum flexibility. Using research to improve practice may also be well served by implementing and supporting consistent evaluations of delivery processes across schools and settings, and then co-ordinating and disseminating the results in ways that practitioners can readily access.

3.4 Themes for Future Research

The focus in this report on curriculum and access to curriculum for post-primary students with special educational needs identified a number of gaps in the evidence specifically related to this topic. Further research may be able to fill some of these gaps, either by carrying out new primary research to identify the views of teachers on what works and evaluating current practice; or by secondary research to identify and summarise evidence on other themes related to curriculum which might identify more published research by searching in greater depth on more narrow topics.

The most important themes for further research are those to evaluate how best to use increasingly limited resources to improve outcomes for students. These include:

- Training and supporting class and subject teachers:
 - evaluating the most effective way of training teachers so that they are confident in teaching students with special educational needs and have an appropriate level of knowledge and skill about the needs of a wide range of such students.
- Curriculum design and development:

- identifying the most effective methods and strategies to design and develop an appropriate curriculum that minimises problems relating to access to that curriculum for post-primary students with special educational needs
- assessing the effect of strategies to improve delivery of and access to the curriculum on educational attainment.
- Tools and methods for teaching and assessing students with special educational needs:
 - identifying those methods, tools and strategies for teaching and assessment most likely to improve educational outcomes for students with special educational needs.
- Co-teaching and specialist staff:
 - assessing and quantifying the benefit from use of SNAs to determine how best to use these resources.

In the absence of published robust primary research on what works to improve access to a full curriculum, the review authors suggest educators should be encouraged to evaluate their own practice and publish their findings so that others might learn from their experiences and not repeat mistakes or commit resources to practices that have been demonstrated not to improve student outcomes.

3.5 Limitations of the Review

This review was focused on curriculum and access to the curriculum for students with special educational needs, and as such looked broadly but not in great depth across the Irish and international literature. Although we found a good number of studies (82 for the international review and 32 for the Irish review), they typically covered broad topics; few pieces of evidence addressed each particular question. As such, this review highlights emerging trends in the evidence base, but further reviews that search in more depth on specific themes highlighted here (for instance training available for teachers of students with special educational needs) will help to engage more fully with these concerns.

Given the collective international depth of experience and knowledge among educators on teaching students with special educational needs, the lack of published research or evaluations on the topic was surprising. It is therefore difficult to say with confidence what the most effective strategies are in approaches to improve educational, behavioural or social and emotional outcomes for post-primary students with special educational needs. Considering the funding given to schools and teachers to provide an education for these students, it is of concern that so little is known of how this resource should best be spent. For example, many teachers are concerned about their lack of training in how to teach these pupils, yet we found no good research on how this can best be remedied. Similarly, SENCOs and teaching assistants are widely employed, but we found no good quality research on how effective they are, or that demonstrated how they might best improve outcomes for students with special educational needs.

A further concern stems from the quality of the evidence base. Only 15 of the 82 studies included in the international review were rated as of high methodological quality, of high relevance to the issue of post-primary curriculum and to students with special educational needs, and were considered to be readily generalisable to the Irish context. Furthermore, some did not distinguish in their results different age groups (for example, separate results for primary and post-primary students when both were included in the sample), or different types and severity of special educational need. This can make it difficult to determine the precise relevance of the findings to the age groups of interest or to children with different types of problems. We have included these studies, though flawed, to highlight possible issues that might be worth investigating in future research.

The main gaps we found in the evidence relate to the effects in terms of important academic, behavioural and social outcomes from strategies to increase access to the curriculum. This was as true for the international literature as the Irish evidence base. There were particularly few studies on how to design and develop the curriculum to maximise access to it for students with special educational need; the role of SENCOs and teaching assistants; the effects of modifications to curricular pathways; how best to increase the breadth of curriculum offered to the students; and how the transition into and out of post-primary education can be made seamlessly.

3.6 Strengths of the Review

This review gives a broad overview of the issues around curriculum and has been able to summarise the evidence on a wide range of themes having made attempts to identify and synthesise the evidence base in a transparent, unbiased manner. Decisions to include or exclude studies were not made to confirm or dispute a particular theory, but rather to ensure good and fair coverage of the evidence base. Many sources were searched to ensure that we accessed as much relevant evidence as possible.

Moreover, this review was informed by expert consultation and through a brief review of the Irish literature, to maximise the relevance of the topics addressed for the Irish context. Thus, we have produced a review based on the practical concerns of educational provision for students with special educational needs in Ireland that helps to illuminate those gaps in the Irish evidence base.

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Appendices

Appendix A – Descriptions of the Electronic Databases Searched

The following electronic databases were searched in both the Irish and the international reviews:

- Applied Social Sciences Index and Abstracts on the Web (ASSIA). ASSIA is an indexing and abstracting tool covering health, social services, psychology, sociology, economics, politics, race relations, and education. It indexes over 500 journals published in 16 different countries, including the UK and US.
- British Education Index (BEI). The BEI provides comprehensive information on educational research, policy and practice in the UK. It includes journal papers, internet documents (including Education-line and other sources), conference proceedings, and British doctoral theses.
- Education Resources Information Center (ERIC). ERIC is the world's largest digital library of education and education-related literature, and holds abstracts and full-text records of journal articles, books, research syntheses, conference papers, technical reports, policy papers and other education-related materials.
- Social Policy and Practice (SPP). SPP is a bibliographic database covering evidence-based social policy, public health, social services, and mental and community health. It brings together data from six databases: Planex; Acompline; Social Care Online; AgeInfo; Childdata; and Urbadoc. The database holds around 200,000 records, mainly from the UK, but also from the rest of Europe and the US. About half the references are 'grey' literature, including semi-published reports, working papers, local and central government reports, and material from the voluntary sector and charities.

The following were searched in the international literature review only:

- Australian Education Index (AEI). AEI consists of more than 130,000 documents relating to educational research, policy, and practice, and is Australia's largest source of education information. It holds reports, books, journal articles, online resources, conference, papers, and theses.
- British Library for Development Studies (BLDS). BLDS is Europe's largest research collection on economic and social change in developing countries.
- Current Educational Research in the UK (CERUKplus). CERUKplus includes current education and children's services research. It covers individual PhD studies, as well as long-term, large-scale research such as national surveys.
- Community abstracts. This database contains indexed abstracts on a wide range of social policy and welfare issues. It includes coverage from newspapers, journals, books, reports, parliamentary proceedings, press releases and the world wide web.
- Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) (<http://eppi.ioe.ac.uk/cms/>). The EPPI-Centre is part of the Social Science Research Unit at the Institute of Education, University of London. Its website includes a library of completed reviews, plus databases of primary research and reviews – mostly in education.

The following table is a key to the symbols used in database searches:

Symbol	Meaning
\$	Indicates a truncation to find all terms that begin with a given text string. Used in searching Dialog.
*	Indicates a 'wildcard' to find all terms that begin with a given text string. Used in searching CSA, OVID.
.ab	Indicates a search for terms in report abstracts.
.ti	Indicates a search for terms in report titles.
adj	Indicates a search for a preceding term 'adjacent' to the following term.

Appendix B – Detailed Electronic Database Search Strategy (Irish Literature Review)

Searching of the electronic databases for Irish literature review was conducted on March 22nd, 2010 by the Information Retrieval Unit at the King’s College London. Below are the specific search strategies and number of hits for each of the four databases searched.

Resources searched:

- British Education Index (BEI)
- ERIC (Educational Resources Information Center)
- Assia
- Social Policy and Practice (which includes Childdata, Social Care Online, Planex and Urbadoc)

Database	British Education Index
Host	Dialog
Strategy	<ol style="list-style-type: none"> 1. (education or teach or teaching or learning or learn or curriculum or school or special-needs or special-needs-individuals or sen) 2. (differentiation or differentiated or individual-differences or individualised-methods or individual-education-plans or iep or inclusive-education or flexible-progression) 3. (pedagogy or curriculum-enrichment or curriculum-development or cross-curricular-approach or core-curriculum or educational-practices or (curriculum and (content or delivery or planning or structure))) 4. (mixed-ability or flexible provision or (vary or variation or varied or different or abridged and (content or lesson or teaching or learning or learning adj style or activit\$ or resource\$ or pace or level or time or difficult\$ or format))) 5. (teaching-methods or support-staff or classroom-assistants or coordinators or teacher-aides or inservice-teacher-education or special needs assistant\$ or special needs assistant\$ or special needs co-ordinator or special needs team\$) 6. (academic-achievement or educational-attainment or pupil-improvement or learning outcomes or outcomes or certification or assessment or pupil-needs or (pupil or student and (achievement or attainment or grade\$ development or progress))) 7. (ireland or irish or northern ireland or southern ireland or eire) <p>Strategy: 1 and 2 and (3 or 4 or 5 or 6) and 7</p>
Hits	30

Database	Education Resources Information Center
Host	Dialog
Strategy	<ol style="list-style-type: none"> 1. (education or teach or teaching or learning or learn or curriculum or school or special-needs or special-needs-individuals or sen) 2. (differentiation or differentiated or individual-differences or individualised-methods or individual-education-plans or iep or inclusive-education or flexible-progression) 3. (pedagogy or curriculum-enrichment or curriculum-development or cross-curricular-approach or core-curriculum or educational-practices or (curriculum and (content or delivery or planning or structure))) 4. (mixed-ability or flexible provision or (vary or variation or varied or different or abridged and (content or lesson or teaching or learning or learning adj style or activit\$ or resource\$ or pace or level or time or difficult\$ or format))) 5. (teaching-methods or support-staff or classroom-assistants or coordinators or teacher-aides or inservice-teacher-education or special needs assistant\$ or special needs assistant\$ or special needs co-ordinator or special needs team\$) 6. (academic-achievement or educational-attainment or pupil-improvement or learning outcomes or outcomes or certification or assessment or pupil-needs or (pupil or student and (achievement or attainment or grade\$ development or progress))) 7. (ireland or irish or northern ireland or southern ireland or eire) <p>Strategy: 1 and 2 and (3 or 4 or 5 or 6) and 7</p>
Hits	29

Database	Applied Social Sciences Index and Abstracts
Host	CSA
Strategy	<ol style="list-style-type: none"> 1. (education or teach or teaching or learning or learn or curriculum or school or special needs or special needs individuals or sen) 2. (differentiation or differentiated or individual difference* or individual* adj methods or individual education plans or iep or inclusive education or flexible progression) 3. (pedagogy or cross curricular approach or core curriculum or education* adj practices* or (curriculum and (content or delivery or planning or structure or enrichment or development))) 4. (flexible provision or mixed adj ability or (vary or variation or varied or different or abridged and (content or lesson or teaching or learning or learning adj style or activit* or resource* or pace or level or time or difficult* or format))) 5. (teaching methods or support staff or classroom assistant* or coordinators or teacher aid* or inservice teacher education or special needs assistant* or special needs co-ordinator or special needs team*) 6. (academic achievement or educational attainment or learning outcomes or outcomes or certification or assessment or pupil needs or (pupil or student and (achievement or attainment or grade* development or improv* or progress))) 7. (ireland or irish or northern ireland or southern ireland or eire) <p>Strategy: 1 and 2 and (3 or 4 or 5 or 6) and 7</p>
Hits	9

Database	Social Policy and Practice
Host	OVID
Strategy	<ol style="list-style-type: none"> 1. (education or teach or teaching or learning or learn or curriculum or school or special needs or special needs individuals or sen) 2. (differentiation or differentiated or individual difference* or individual* adj methods or individual education plans or iep or inclusive education or flexible progression) 3. (pedagogy or cross curricular approach or core curriculum or education* adj practices* or (curriculum and (content or delivery or planning or structure or enrichment or development))) 4. (flexible provision or mixed adj ability or (vary or variation or varied or different or abridged and (content or lesson or teaching or learning or learning adj style or activit* or resource* or pace or level or time or difficult* or format))) 5. (teaching methods or support staff or classroom assistant* or coordinators or teacher aid* or inservice teacher education or special needs assistant* or special needs co-ordinator or special needs team*) 6. (academic achievement or educational attainment or learning outcomes or outcomes or certification or assessment or pupil needs or (pupil or student and (achievement or attainment or grade* development or improv* or progress))) 7. (ireland or irish or northern ireland or southern ireland or eire) <p>Strategy: 1 and 2 and (3 or 4 or 5 or 6) and 7</p>
Hits	15

Appendix C – Detailed Electronic Database Search Strategy (International Literature Review)

Searching of the electronic databases for international literature review was conducted on May 19th, 2010, by the Information Retrieval Unit at the King's College London. Details of the search strategies used are given below.

Search syntax by database for the international literature review

Database Name	Education Resources Information Center
Database Host	Dialog
Strategy Applied	<ol style="list-style-type: none"> 1. (special need\$ or special needs individuals or sen or special schools or inclusive schools or special education or special educational needs).ti,ab. 2. (pedagogy or cross curricular approach or core curriculum or curriculum of education\$ adj practices or (curriculum and (content or delivery or planning or structure or enrichment or development))).ti,ab. 3. (flexible provision or mixed adj ability).ti,ab. 4. (vary or variation or varied or different or abridged and (content or lesson or teaching or learning or learning adj style or activit\$ or resource\$ or pace or level or time or difficult\$ or format)).ti,ab. 5. (teaching methods or support staff or classroom assistant\$ or coordinators or teacher aid\$ or inservice teacher education or special needs assistant\$ or special needs co-ordinator or special needs team\$).ti,ab. 6. (academic achievement or educational attainment or learning outcomes or outcomes or certification or assessment or pupil needs).ti,ab. 7. (pupil or student and (achievement or attainment or grade\$ development or improv\$ or progress)).ti,ab. 8. (differentiation or differentiated or individual difference\$ or individual difference\$ or individual\$ adj methods or individual education plans or IEP or inclusive education or flexible progression).ti,ab. 9. (ADULT\$) 10. 1 and (2 or 3 or 4 or 5 or 6 or 7) and 8 11. 10 NOT 9 12. LIMIT 11 TO 1995– Current & ENGLISH LANGUAGE

Database Name	Australian Education Index
Database Host	Dialog
Strategy Applied	<ol style="list-style-type: none"> 1. (special need\$ or special needs individuals or sen or special schools or inclusive schools or special education or special educational needs).ti,ab. 2. (pedagogy or cross curricular approach or core curriculum or curriculum of education\$ adj practices or (curriculum and (content or delivery or planning or structure or enrichment or development))) .ti,ab. 3. (flexible provision or mixed adj ability).ti,ab. 4. (vary or variation or varied or different or abridged and (content or lesson or teaching or learning or learning adj style or activit\$ or resource\$ or pace or level or time or difficult\$ or format)).ti,ab. 5. (teaching methods or support staff or classroom assistant\$ or coordinators or teacher aid\$ or inservice teacher education or special needs assistant\$ or special needs co-ordinator or special needs team\$).ti,ab. 6. (academic achievement or educational attainment or learning outcomes or outcomes or certification or assessment or pupil needs).ti,ab. 7. (pupil or student and (achievement or attainment or grade\$ development or improv\$ or progress)).ti,ab. 8. (differentiation or differentiated or individual difference\$ or individual difference\$ or individual\$ adj methods or individual education plans or IEP or inclusive education or flexible progression).ti,ab. 9. (ADULT\$) 10. 1 and (2 or 3 or 4 or 5 or 6 or 7) and 8 11. 10 NOT 9 12. LIMIT 11 TO 1995– Current & ENGLISH LANGUAGE

Database Name	British Education Index
Database Host	Dialog
Strategy Applied	<ol style="list-style-type: none"> 1. (special need\$ or special needs individuals or sen or special schools or inclusive schools or special education or special educational needs). ti,ab. 2. (pedagogy or cross curricular approach or core curriculum or curriculum of education\$ adj practices or (curriculum and (content or delivery or planning or structure or enrichment or development))). ti,ab. 3. (flexible provision or mixed adj ability).ti,ab. 4. (vary or variation or varied or different or abridged and (content or lesson or teaching or learning or learning adj style or activit\$ or resource\$ or pace or level or time or difficult\$ or format)).ti,ab. 5. (teaching methods or support staff or classroom assistant\$ or coordinators or teacher aid\$ or inservice teacher education or special needs assistant\$ or special needs co-ordinator or special needs team\$).ti,ab. 6. (academic achievement or educational attainment or learning outcomes or outcomes or certification or assessment or pupil needs). ti,ab. 7. (pupil or student and (achievement or attainment or grade\$ development or improv\$ or progress)).ti,ab. 8. (differentiation or differentiated or individual difference\$ or individual difference\$ or individual\$ adj methods or individual education plans or IEP or inclusive education or flexible progression).ti,ab. 9. (ADULT\$) 10. 1 and (2 or 3 or 4 or 5 or 6 or 7) and 8 11. 10 NOT 9 12. LIMIT 11 TO 1995– Current & ENGLISH LANGUAGE

Database Name	Applied Social Sciences Index and Abstracts
Database Host	CSA
Strategy Applied	<ol style="list-style-type: none"> 1. ("special need*" or "special needs individuals" or "sen" or "special schools" or "inclusive schools" or special education or special educational needs) 2. (Pedagogy or cross curricular approach or core curriculum or education* adj practices or curriculum or (curriculum and (content or delivery or planning or structure or enrichment or development))) 3. (flexible provision or mixed adj ability or (vary or variation or varied or different or abridged and (content or lesson or teaching or learning or learning adj style or activit* or resource or place or level or time or difficult* or format))) 4. (teaching methods or support staff or classroom assistant* or coordinators or teacher aid* or inservice teacher education or special needs assistant* or special needs co-ordinator* or special needs team*) 5. (academic achievement or educational attainment or learning outcomes or outcomes or certification or assessment or pupil needs or (pupil or student and (achievement or attainment or grade* development or improv* or progress))) 6. (differentiation or differentiated or individual difference* or individual* adj methods or individual education plans or IEP or inclusive education or flexible progression) 7. 1 AND (2 OR 3 OR 4 OR 5) AND 6 8. ADULT\$ 9. 7 NOT 8 10. Limit 9 to 1995–2010 and English Language.

Database Name	Social Policy and Practice
Database Host	Ovid
Strategy Applied	<ol style="list-style-type: none"> 1. (special need* or special needs individuals or sen or special schools or inclusive schools or special education or special educational needs) 2. (Pedagogy or cross curricular approach or core curriculum or education* adj practices or curriculum or (curriculum and (content or delivery or planning or structure or enrichment or development))) 3. (flexible provision or mixed adj ability or (vary or variation or varied or different or abridged and (content or lesson or teaching or learning or learning adj style or activit* or resource or place or level or time or difficult* or format))) 4. (teaching methods or support staff or classroom assistant* or coordinators or teacher aid* or inservice teacher education or special needs assistant* or special needs co-ordinator* or special needs team*) 5. (academic achievement or educational attainment or learning outcomes or outcomes or certification or assessment or pupil needs or (pupil or student and (achievement or attainment or grade* development or improv* or progress))) 6. (differentiation or differentiated or individual difference* or individual* adj methods or individual education plans or IEP or inclusive education or flexible progression) 7. 1 AND (2 OR 3 OR 4 OR 5) AND 6 8. ADULT\$ 9. 7 NOT 8 10. Limit 9 to 1995–2010 and English Language.

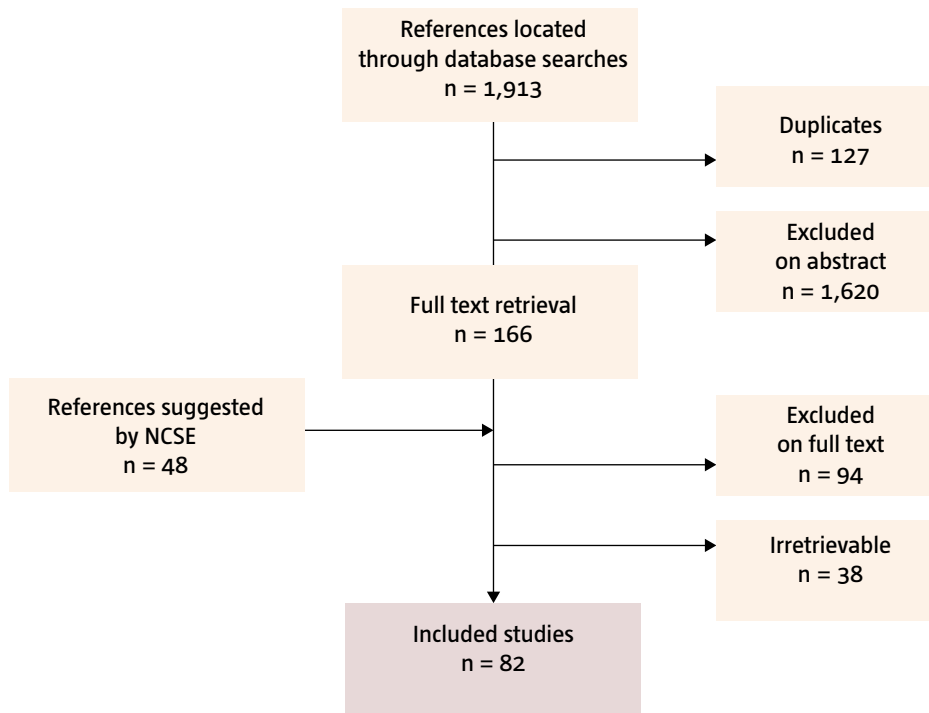
Database Name	British Library for Development Studies
Database Host	http://blids.ids.ac.uk/search/simprt.html
Strategy Applied	Special needs education

Database Name	Community Abstracts
Database Host	Oxmill
Strategy Applied	(Special Needs Education) and (Differentiation or curriculum) and (special needs individuals or sen or special schools or inclusive schools or special education or special educational needs)

Database Name	EPPI-Centre database of education research
Database Host	http://eppi.ioe.ac.uk/webdatabases/Intro.aspx?ID=6
Strategy Applied	Special needs education

Database Name	CERUK (Current education & children's services research in the UK)
Database Host	http://www.ceruk.ac.uk/
Strategy Applied	Special needs education

Appendix D – Flow of Literature Diagram for the International Review



Appendix E – Quality/Relevance Assessment of Studies Included in the International Review

Study	Country	Is there clear reporting to show high quality methodology?	Is the study focused on PP curriculum and pupils with SEN?	Are the findings easily generalisable to Ireland?	Overall score
Alberta Educ (2009)	Canada	++	+	++	++
Blatchford (2004)	England & Wales	++	++	+	++
Blatchford (2009)	England & Wales	++	++	+	++
Douglas (2009)	Various	++	+	++	++
Dyson (2004)	England	++	+	++	++
Farrell (2007)	England	++	+	++	++
Kalambouka (2005)	Various	++	+	++	++
Kane (2003)	Scotland	++	+	++	++
MacBeath (2006)	England	++	+	++	++
Marschark (2009)	Various	++	+	++	++
Newman (2006)	US	++	++	+	++
Nind (2004)	Various	++	+	++	++
Rubie-Davies (2010)	England & Wales	++	++	+	++
Tomlinson (2003)	Various	++	++	+	++
Yu (2009)	US	++	++	+	++
Angelides (2007)	Cyprus	+	+	-	+
Arthaud (2000)	US	++	+	+	+
Black-Hawkins (2008)	England	+	+	++	+
Bottge (2007)	US	+	-	+	+
Brackenreed (2004)	Canada	++	+	+	+
Broer (2005)	US	+	+	++	+
Bulgren (2002)	US	+	+	+	+
Byers (2008)	England	++	+	+	+
Dart (2007)	Botswana	+	+	-	+
Dymond (2006)	US	-	++	+	+
Dyson (2000)	England	+	+	+	+
EAD (2006)	Various	+	+	+	+
Ellins (2005)	England	-	+	+	+
Emam (2009)	UK	+	-	+	+
Fish (2008)	US	+	+	+	+
Humphrey (2008)	England	+	-	+	+
Jarvis (2003)	England	++	+	+	+
Johnson (2007)	US	+	-	+	+
Keyes (2003)	US	+	+	+	+
King (2003)	US	+	+	+	+
Kontu (2008)	Finland	+	+	+	+
Kortering (2005)	US	+	+	+	+
Li <i>et al</i> (2009)	China	+	++	-	+
Loreman (2001)	Australia	+	+	+	+
Mariage (2009)	US	+	+	+	+
Markussen (2004)	Norway	++	+	+	+

Study	Country	Is there clear reporting to show high quality methodology?	Is the study focused on PP curriculum and pupils with SEN?	Are the findings easily generalisable to Ireland?	Overall score
Martin (2004)	US	+	+	-	+
McNicholas (2000)	England & Wales	-	+	+	+
Murry (2000)	US	+	+	+	+
Nelson (2006)	US	++	+	-	+
Olsen (2009)	US	++	+	+	+
Persson (2008)	Sweden	-	+	+	+
Pudlas (2004)	Canada	+	-	+	+
Rix (2006)	Various	++	+	+	+
Roach (2006)	US	+	++	-	+
Rose (2007)	US	+	+	-	+
Schumaker (2002)	US	+	+	-	+
Smith (2006)	Various	+	+	+	+
Thompson (2005)	US	+	+	-	+
Tillmann (2001)	US	+	+	+	+
Unruh (2007)	US	-	++	+	+
Van Acker (2005)	US	+	+	-	+
Visser (1997)	Various	-	+	+	+
Waite (2005)	England	+	+	+	+
Wilson (2006)	US	+	+	+	+
Allodi (2007)	Sweden	-	-	+	-
Arif (2008)	Dubai (UAE)	-	++	-	-
Doole (2008)	Australia	-	+	-	-
Ee (2005)	China	-	++	-	-
Griffiths (2009)	UK	-	-	+	-
Herold (2009)	England	-	-	+	-
Kokkinos (2009)	Greece	+	-	-	-
Lingard (2001)	England	-	+	-	-
Lombardi (2002)	Various	-	+	-	-
Maddison (2002)	England	-	+	-	-
Martin (2001)	US	+	-	-	-
Mid-Continent (2000)	US	-	-	+	-
Milton (2003)	Australia	-	+	-	-
Ocloo (2008)	Ghana	-	-	-	-
Piggot-Irvine (2009)	NZ	-	+	-	-
Sargent (2001)	US	-	+	-	-
So (2005)	Macao	+	-	-	-
Stenson (2006)	US	-	-	-	-
Stroggilos (2006)	Greece	-	+	-	-
Wasburn-Moses (2006)	US	-	+	-	-
Wheeler (2008)	England	+	-	-	-
Yeh (2006)	US	-	+	-	-



