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Abstract

Background: This investigation is the second paper of a companion set reporting the outcomes of secondary schooling for young people who have been participating in the Manchester Language Study.

Aims: To examine the school context of educational results at 16 years of age and to provide information on the adolescents' post-16 activities.

Methods & Procedure: A total of 120 adolescents with a history of specific language impairment (SLI) and 121 adolescents with typical development (TD) in their final year of compulsory secondary schooling (mean age = 17;4 years) participated in the study. Data on educational placement, special education support, and provision of statement of special educational needs (SEN) were collected, along with the provision of access arrangements during examinations. Adolescents were interviewed about their levels of expectation and satisfaction with their examination results and their subsequent post-16 activities.

Outcomes & Results: Only a small proportion of adolescents attended special units/schools throughout their secondary schooling; a larger proportion consistently attended mainstream schools. Those in receipt of a statement of SEN performed more poorly in their examinations than those without a statement. Around 60% of the adolescents with SLI were provided with some type of access arrangements during their core examinations. The majority (88%) of adolescents with SLI reported that they were satisfied with their educational outcomes. Most adolescents with SLI (91%), regardless of school placement at 16 years, remained in education post-16, with the majority in college settings.

Conclusions: Adolescents with a history of SLI have continued difficulties throughout secondary schooling, with three-quarters of the sample receiving some form of special education in a variety of settings. Educational attainment varies across different groups of adolescents but was consistently poorer than the attainment of typically developing peers. Young people with SLI in the 2000s appear to have more opportunities to remain in education post-16 than they did in the 1990s.

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What this paper adds

Little research is available on the educational contexts young people with specific language impairment (SLI) experience during secondary schooling and at the time of their last year of compulsory education. The present study found that only a small proportion of adolescents attended special units/schools throughout their secondary schooling, that most adolescents with SLI were in receipt of a statement of special educational needs (SEN) at 16 years and that about 60% of adolescents were provided with examination access arrangements at that stage. There was heterogeneity in the educational outcomes of young people with SLI and this was partly related to issues such as placement type and receipt of a statement of SEN. The majority of adolescents with SLI remained in education post-16, with the largest proportion attending college placements.

Introduction

The previous paper in this two-part series reported on the educational attainments of young people with histories of specific language impairment (SLI) at the end of their secondary schooling (Conti-Ramsden *et al.* 2007). Comparing a large sample of adolescents with SLI and an age-matched sample of adolescents with typical development (TD), it was found that, on average, the SLI group achieved less successful outcomes from secondary education (in examinations roughly equivalent to a US High School Diploma, French Baccalaureate or Japanese Upper Secondary School Certificate). However, there was variety of outcomes, with a substantial proportion (44%) of the SLI group obtaining at least one of the expected qualifications at the end of secondary school. Analyses indicated that performance IQ (PIQ), maternal education, and literacy and language skills all contribute to the prediction of educational results. We also found a very strong association between earlier patterns of entry to examinations and patterns of examination entry at school leaving age, thus raising questions about the enduring consequences of early educational assignments and about the ways in which the needs of children with SLI might be met by specialist support. In the present study, we turn directly to the educational contexts experienced by young people with SLI, examining the levels of support received, the young people's own expectations and evaluations, and their progress in post-compulsory secondary schooling.

Previous research has examined some of the factors related to these topics, but to the authors' knowledge, there has been no previous study that brings together and examines potential relationships among examination results, educational placements, educational and examination support and the adolescents' own opinion of their educational achievements all within the same sample. The Manchester Language Study with its longitudinal focus provides a unique opportunity for this type of investigation.

Children with SLI enter a range of educational contexts and experience different types of support. There is controversy and debate concerning exactly which types of provision should be supplied to which children. Over the last decade or so, services for children with speech and language needs in England have been in flux and there is marked variation in terms of the extent of services delivered (Lindsay *et al.* 2002). Lindsay *et al.* identify a number of factors that bear on what is provided, including major systemic pressures arising from government policies, structural changes in the organization of services, and developments in professional practices among speech and language therapists. Their survey of service managers also revealed that most provision in educational settings was made to mainstream schools, though the provision of speech and language therapy (SLT) time per child was substantially higher in the context of specialist language resources. Most SLT provision was for children with statements of special educational needs (SEN). In England, a statement of SEN is a legal document that sets out a child's special educational needs and the support they should have.

What do we know about the educational contexts in which children prepare for the critical examinations at the end of compulsory education? Lindsay *et al.*'s (2002) investigation found that most services are targeted at children in the primary school age range, with relatively little provided at secondary age (also Dockrell *et al.* 2007). In terms of information on the potential influence of provision of special education in mainstream versus more specialized settings during the secondary years, the few studies available have either focused on a particular educational setting (e.g., school leavers from a specialist language school, all in receipt of a statement of SEN; Haynes and Naidoo 1991) or have not included in their investigations an examination of educational setting or educational support received (e.g. Snowling *et al.* 2001). More specifically, in terms of educational support for examinations, in a previous paper concerning 11-year-old children (Conti-Ramsden *et al.* 2002), we found that almost three out of four children who took at least one test had access arrangements made for them during their examinations. Access arrangements, which must be approved before the examination, comprise the provision of a reader or a scribe, for example. Dockrell *et al.* (2007) found that, with respect to diagnostic classification, the routes that young people followed through their secondary schooling were somewhat heterogeneous and there was variability in the extent and nature of specialist resources available. Part of the purpose of the present study was to add to the information available concerning the provision and consistency of specialist services during the secondary school years and the provision of access arrangements during the examinations taken as adolescents with a history of SLI reach the end of compulsory schooling at 16 years of age.

There is a growing recognition in work with young people with disabilities that researchers and policymakers need to take into account the perceptions and opinions of the young people themselves (Lewis and Lindsay 2000, Kelly and Norwich 2004, Vlachou *et al.* 2006). In the present study, our interest lay in the adolescents' views of their examination outcomes at the end of secondary schooling. On first consideration, we might expect individuals who perform below average to have negative responses. However, research with children with moderate learning difficulties (including some participants with co-morbid language impairments) indicates that those receiving special education tend to be aware of their distinctiveness and to reflect a mixture of negative and positive self-regard as they resolve the tensions associated with constructing an understanding of their exceptionality (Norwich 1997, Kelly and Norwich 2004).

With regard to expectations and levels of satisfaction with examination results among adolescents with SLI, some previous findings suggest that similar processes may be expected with this population, too. Felsenfeld *et al.* (1994) and Records *et al.* (1992) examined objective measures of educational and occupational attainment in young adults with histories of language impairment, as well as collecting subjective measures of satisfaction with these aspects of personal progress. In comparison to control (non-impaired) participants, the language-impaired participants in each study had fared significantly less well on both objective criteria. Yet on the subjective measures, they reported satisfaction with their education and current occupation and did not differ significantly from their respective controls. Dockrell *et al.* (2007) found that most of their sample of adolescents with language difficulties spoke positively about the specialist support they had received in respect of their learning needs. Relatively little is known of how adolescents with SLI evaluate their educational outcomes, and part of the purpose of the present study was to obtain information in this respect. The above findings led us to expect that, although educational outcomes were indeed poorer in the SLI group, they should indicate comparable levels of educational satisfaction to those of the TD comparison group.

Given the interest in the long-term consequences of language impairment and the observations of associated widespread educational difficulties, the post-secondary activity of children with a history of SLI is of particular importance. Are these young people less likely to engage with further education following the end of compulsory schooling than their typically developing peers? Hall and Tomblin (1978) suggest that adults with a history of more moderate speech-language problems (in contrast to those with mild articulation disorders only) are less likely to pursue higher education. Similarly, Felsenfeld *et al.* (1994) interviewed a group of 24 adults with a documented history of moderate phonological/language disorder. They found that these adults had completed less formal education than a comparison group with similar backgrounds but with no language impairments. Although all participants in both groups had obtained at least a high school equivalency degree, 75% of typically developing adults in comparison to only 29% of the language impaired sample had completed at least one year of post-secondary education or training. None of the language-impaired adults had earned a college or graduate degree, and they were significantly more likely to be in lower skilled, non-professional jobs than those in the comparison group. Snowling *et al.* (2001) examined post-16 education rates and employment in 71 language-impaired adolescents and 49 age-matched controls at ages 16–17 years. They found that only around half of the ‘Persistent-SLI’ and ‘general delay’ groups remained in full-time education post-16 in comparison with approximately three-quarters of the ‘Resolved-SLI’ and control groups. Dockrell *et al.* (2007) found that 77% of their sample continued in full time education and a further 12% undertook work-related training.

Within this context, this second paper of the companion set addressed the following specific questions:

- What is the wider context of the educational attainments of adolescents with SLI in terms of educational placement and provision of statements of SEN throughout secondary schooling?
- What type of access arrangements are provided during Key Stage (KS)4 core examinations?
- What are the levels of expectation and satisfaction reported by adolescents in terms of their KS4 academic achievement?
- What educational/training activities are adolescents engaged with post-16?

Methods

Participants

The same participants as in the companion paper took part in this investigation (120 adolescents with SLI, 121 TD adolescents, mean age=17;4). All participants were members of the Conti-Ramsden Manchester Language Study (Conti-Ramsden *et al.* 1997, Conti-Ramsden and Botting 1999a, b), to which they had originally been recruited at age 7 years.

Tests and materials specific to this study

Educational placements, statements and level of examination support

Each participant’s educational placement and whether they were in receipt of a statement of special educational needs (SEN) was recorded at 11, 14 and 16 years. In the UK, a proportion of pupils with SEN have a statement of their educational needs which includes information on the help the pupil requires. Not all children with SEN receive statements. Although there are variations across local education authorities, a pupil usually receives a statement of SEN if the pupil’s needs cannot be provided from within the pupil’s school (http://www.direct.gov.uk/en/Parents/Schoolslearninganddevelopment/SpecialEducationalNeeds/DG_4000870). All the participants in our study were in receipt of a statement of SEN at the point of initial recruitment (7 years of age).

In addition to information on examinations taken and results achieved by each participant, information was also collected on access arrangements, i.e., the type and level of support, if any, that had been provided in terms of reader, scribe, extra time allowance or other form of support during the examinations.

Levels of expectation and satisfaction with KS4 results

Adolescents were interviewed about their opinions of their KS4 results. In the UK, the national curriculum specifies which subjects are studied by all children in state schools and also divides them into age groups called Key Stages (KS). In the last year of compulsory secondary education, adolescents take KS4 examinations in different subjects, e.g. Mathematics, English, and Science. Each young person was asked 'Did you get the results you expected?' Responses were coded as 'yes', 'no, better than expected' or 'no, worse than expected'. The adolescents were then asked 'Are you happy with the results you got?'. Responses were coded as 'yes', 'no' or 'mixed feelings'.

Post-16 activities

Adolescents were interviewed concerning their post-16 activities. It was determined whether they had remained in education, continued on to employment or were not in any employment, education, or training.

For those remaining in education following the end of compulsory schooling, details were collected on placement type (mainstream or special school/college). If they were attending a mainstream placement, it was noted whether support was provided. It was determined which course the young person was enrolled on and which qualification level the course was leading to (Entry Level, Levels 1, 2 or 3). Level 3 is the expected attainment for age and is equivalent to A-Level/BTec courses. Participants were also asked whether they were happy with their course overall (yes, no) and whether they were happy with the way the course was being delivered to them (yes, no). If 'no', the reasons for dissatisfaction were recorded (too fast, too much writing, too much reading, or other).

For those continuing to employment, job type was recorded (outdoor manual, indoor manual, clerical/technical, care-based, or other). It was asked whether the employment was paid or voluntary and whether the young person was happy with the employment (yes, no). Participants were asked whether they turned down a place on an educational course to do the job (yes, no).

Results

An alpha (α) level of 0.05 was used for all statistical tests.

KS4 Results and educational placement throughout secondary schooling

Figure 1 shows the individual stability and change in educational placement across the educational life span of these children.

All children were attending language units at age 7 years. By the end of compulsory schooling, three-quarters of the sample were still receiving some form of special education (91/120, 76%).

In terms of individual consistency, only 5/120 (4%) adolescents attended a specialist language placement throughout schooling between the ages of 7 and 16 years. There were 21/120 (18%) adolescents who consistently attended special units/schools throughout secondary schooling (11–16 years), 30/120 (25%) who were consistently placed in mainstream schools with support and 15/120 (13%) who were consistently placed in mainstream schools without support. This meant that 49/120 (41%) of the adolescents with SLI experienced change in the type of educational placement provided throughout their secondary education.

The proportion of adolescents not entered for core General Certificate of Secondary Education (GCSE) examinations as a function of school placement is presented in table 1. Note that the categories of language units/schools and special units/schools have been collapsed to form one category; specialist placement.

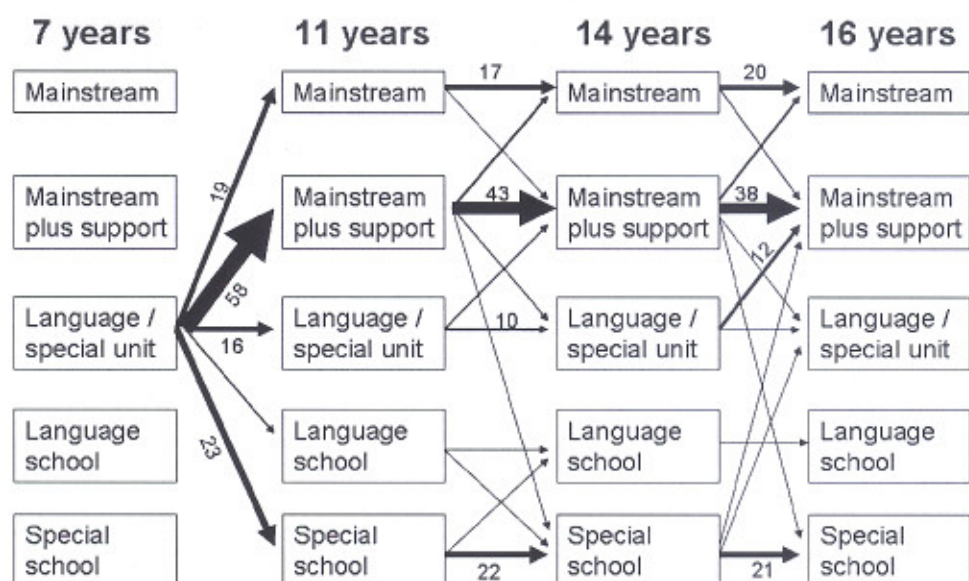


Figure 1. Consistency in educational placement during schooling for adolescents with specific language impairment (SLI).

Chi-square (χ^2) analysis revealed a significant relationship between placement and patterns of entry/non-entry for English language ($\chi^2(2)=61.5, p<0.001$), for Mathematics ($\chi^2(2)=53.8, p<0.001$), for Science ($\chi^2(2)=60.4, p<0.001$) and for any core examination ($\chi^2(2)=59.0, p<0.001$). Of those in mainstream placements, there were no cases of adolescents not entered for any core GCSE examination. As can be seen, in specialist placements the proportion of individuals not entered was some ten times higher than the proportion not entered in mainstream placements with support.

The pattern of results for those adolescents entered for KS4 examinations as a function of concurrent placement is presented in table 2.

There was no difference in GCSE/General National Vocational Qualification (GNVQ) point score between adolescents with SLI in language units/schools and

Table 1. Proportions of adolescents with specific language impairment not entered for core GCSE examinations as a function of secondary school placement

	Mainstream placement, <i>n</i> =29	Mainstream placement with support, <i>n</i> =54	Specialist placement, <i>n</i> =37
Not entered for English language	0/29 0%	11/54 20%	32/37 86%
Not entered for Mathematics	1/29 3%	5/54 9%	27/37 73%
Not entered for Science	0/29 0%	7/54 13%	29/37 78%
Not entered for any core examination	0/29 0%	4/54 7%	26/37 70%

Table 2. KS4 point score for typical development (TD) adolescents and adolescents with specific language impairment (SLI) as a function of secondary school placement

	Mean	Standard deviation	Minimum	Maximum
TD adolescents	390.5	130.0	54	676
SLI mainstream	305.3	132.3	34	538
SLI mainstream plus support	230.0	99.1	34	450
SLI specialist placement	109.2	86.1	16	222

adolescents with SLI in special units/schools, $F(1,10)=0.56$, $p=0.472$. These groups were therefore collapsed to form one group; specialist placement. Analyses of variance (ANOVAs) indicated significant differences across the four groups on KS4 point score, $F(3,207)=34.57$, $p<0.001$, partial $\eta^2=0.33$. Tukey's post hoc tests revealed that the TD adolescents gained higher point scores than the adolescents with SLI in mainstream ($p=0.005$), in mainstream with support ($p<0.001$) and in specialist placements ($p<0.001$). Adolescents with SLI in mainstream achieved higher point scores than both adolescents with SLI in mainstream with support ($p=0.042$) and those in specialist placements ($p<0.001$). Adolescents in mainstream with support gained higher point scores than those in specialist placements ($p=0.012$).

The psycholinguistic characteristics of young people with SLI in the three contexts examined above — mainstream with no support, mainstream with support, and specialist placement — are presented in table 3.

Observation of these figures suggests differences across these three groups. Hence, we repeated the above analysis co-varying for all the variables that had been found to be predictive of attainment (non-verbal IQ, maternal education, literacy and language). After controlling for these variables, differences in educational attainment between adolescents with SLI attending mainstream without support versus those attending with support disappeared. However, the differences between adolescents with SLI attending mainstream with support and those attending specialist placements remained.

Table 3. Concurrent psycholinguistic profiles (standard scores) for adolescents with specific language impairment (SLI) as a function of secondary school placement

	Mainstream placement, $n=29$, mean (SD)	Mainstream placement plus support, $n=54$, mean (SD)	Specialist placement, $n=37$, mean (SD)
CELF-R Receptive subtest	95.8 (17.4)	83.4 (14.2)	77.3 (17.0)
CELF-R Expressive subtest	82.0 (11.9)	72.9 (8.9)	69.7 (8.7)
WORD Single Word Reading	94.3 (13.2)	85.2 (15.2)	74.2 (19.9)
WORD Reading Comprehension	86.0 (10.8)	76.4 (13.8)	66.3 (12.7)
WISC PIQ	97.2 (15.0)	83.1 (18.9)	75.1 (18.4)

CELF-R, Clinical Evaluation of Language Functioning – Revised; PIQ, performance IQ; SD, standard deviation; WISC, Wechsler Intelligence Scale for Children; WORD, Wechsler Objective Reading Dimensions.

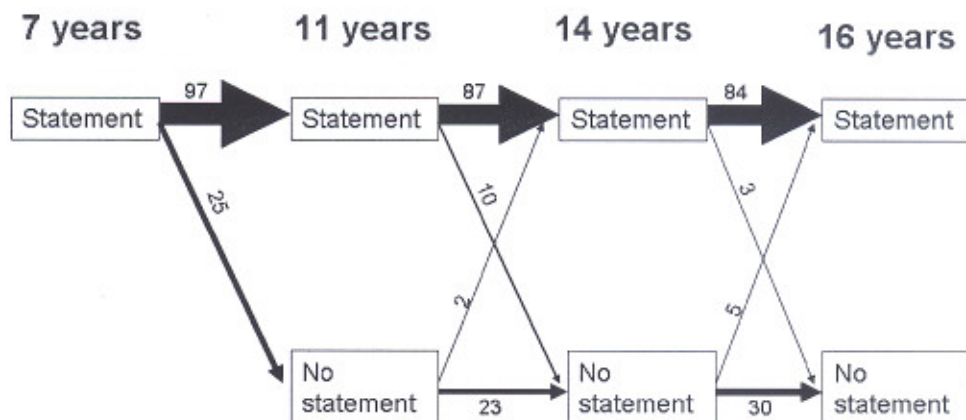


Figure 2. Consistency in provision of statement of special educational needs (SEN) during schooling for adolescents with specific language impairment (SLI).

KS4 results and provision of statements of SEN throughout secondary schooling

A high level of consistency was observed in the provision of statements of SEN throughout the educational life of adolescents with a history of SLI. Figure 2 shows the individual continuity in provision.

The relationship between educational placement and provision of a statement of SEN across the schooling of the adolescents with SLI is presented in table 4.

It can be seen that there was not always full overlap between provision of a statement of SEN and provision of specialist education in a variety of placements.

We examined the difference between adolescents with SLI who did and did not have a statement of SEN at KS4. Those without a statement obtained a mean GCSE point score of 299.5 (standard deviation (SD)=119.2, range 34–538). Those who were in receipt of a statement of SEN obtained a mean point score of 201.4 (SD=112.9, range 16–490). This difference was significant, $F(1,89)=15.44$,

Table 4. Provision of a statement of SEN by educational placement from 11 to 16 years for adolescents with specific language impairment (SLI)

	With a statement of SEN, <i>n</i> (%)	Without a statement of SEN, <i>n</i> (%)
<i>11 years</i>		
Mainstream	None	19 (16)
Mainstream plus support	50 (42)	6 (5)
Specialist placement	45 (37)	None
<i>14 years</i>		
Mainstream	2 (2)	23 (19)
Mainstream plus support	39 (33)	10 (8)
Specialist placement	46 (39)	None
<i>16 years</i>		
Mainstream	5 (4)	24 (20)
Mainstream plus support	43 (36)	11 (9)
Specialist placement	37 (31)	None

Proportions are percentages of the total at each age band.

All children were attending language units and had a statement of SEN at 7 years.

$p < 0.001$, partial $\eta^2 = 0.15$. The psychometric profile at 16 years of these groups was also found to be consistently different across all areas assessed. Adolescents with SLI with a statement of SEN were found to have significantly lower performance IQ (PIQ) (with statement mean = 79.2, SD = 18.8; without statement mean = 95.5, SD = 16.4; $F(1,112) = 18.85$, $p < 0.001$, partial $\eta^2 = 0.14$). They also had lower expressive language (with statement mean = 72.1, SD = 9.8; without statement mean = 78.7, SD = 11.2; $F(1,114) = 9.94$, $p = 0.002$, partial $\eta^2 = 0.08$), lower receptive language (with statement mean = 81.1, SD = 16.3; without statement mean = 92.6, SD = 16.7; $F(1,114) = 11.67$, $p = 0.001$, partial $\eta^2 = 0.09$), lower single word reading (with statement mean = 80.2, SD = 18.7; without statement mean = 92.8, SD = 12.5; $F(1,113) = 12.65$, $p = 0.001$, partial $\eta^2 = 0.10$), and lower reading comprehension (with statement mean = 71.7, SD = 14.1; without statement mean = 84.9, SD = 11.5; $F(1,112) = 22.55$, $p < 0.001$, partial $\eta^2 = 0.17$). When considering the earlier profiles of those with and without a statement at KS4, those with a statement had significantly lower PIQ, expressive language, receptive language and literacy scores at 7 and 11 years of age. The exception was single word reading at 7 years, where no difference was observed between groups.

Academic outcomes of Resolved- versus Persisting-SLI

The Persisting-SLI group comprised those meeting criteria for SLI currently and those with low IQ and language difficulties ($n = 94$) and the Resolved-SLI group comprised those with current normal non-verbal and language abilities ($n = 17$). Around half of the Resolved-SLI group had a statement of SEN throughout secondary schooling (8/17, 47% at 11 years; 8/17, 47% at 14 years; 7/17, 41% at 16 years). This figure was much higher (around three-quarters) for the Persisting-SLI group (80/94, 85% at 11 years; 72/94, 77% at 14 years; 71/94, 76% at 16 years).

In terms of the educational placement of the two groups, the Resolved-SLI group was mainly attending mainstream schools at 11 years (7/17, 41% without support; 9/17, 53% with support) with one child (1/17, 6%) still attending a language unit. At 14 years the picture was similar in the number attending mainstream schools (8/17, 47% without support; 6/17, 35% with support) and 1/17 (6%) attending a language unit. Two children (2/17, 12%) were currently placed in a special school. Finally, at 16 years, the Resolved-SLI group was mainly placed in mainstream without support (11/17, 65%) with 4/17 (24%) in mainstream with support and 2/17 (12%) still in a special school.

The Persisting-SLI group was more heterogeneous in terms of educational placement. At 11 years, the majority (44/120, 37%) was placed in mainstream with support with 10/120 (12%) in mainstream with no support; 19/120 (16%) were in language units/schools and 21/120 (18%) were in special schools/units. At 14 years, 40/120 (33%) were in mainstream with support and 15/120 (13%) were in mainstream with no support; 12/120 (10%) were in language units/schools and 27/120 (23%) were in special schools/units. Finally, at 16 years, 45/120 (36%) were in mainstream with support and 16/120 (13%) were in mainstream with no support; 8/120 (7%) of adolescents with Persisting-SLI were in language units/schools and 25/120 (21%) were in special units/schools.

Adolescents leaving school without Level 1 or 2 KS4 qualifications: educational placement and provision of statement of SEN

In terms of educational history, this group was mainly attending secondary special schools at 11 years (17/26, 65%) with 3/26 (12%) attending mainstream schools with support, 2/26 (8%) attending language units and 4/26 (15%) attending language schools. Thus, all were receiving special education and this remained the case through secondary schooling. At 14 years, 20/26 (77%) were attending special schools/units, 3/26 (12%) were attending language schools and 3/26 (12%) were attending mainstream schools with support. Finally, at 16 years, the majority (20/26, 77%) were attending special schools/units, 3/26 (12%) were in language units and 3/26 (12%) were in mainstream schools with support. Therefore, all adolescents with no Level 1 or 2 qualifications at the end of compulsory secondary education had received special education provision (mainly but not exclusively in specialist settings) throughout their educational life span. They were all in receipt of statements of SEN during this time.

There were also three adolescents with SLI who left school with no recognized qualifications (as opposed to no Level 1 or 2 qualifications as above). Two of these young people had a research diagnosis of autism from an earlier phase of the study. One of them had been in a special school with a consistent provision of a statement of SEN throughout secondary school. The other also had a consistent provision of a statement of SEN but had been in a mainstream placement with support at age 11 and age 14 years, transferring to a special school at age 16 years. The remaining adolescent had been in a mainstream placement with support throughout secondary school but had no statement of SEN. This adolescent was entered for GCSE examinations but was absent for all of them.

Access arrangements during KS4 core examinations

As would be expected, there was a clear difference in examination support at KS4 given to adolescents with SLI and TD adolescents. It can be seen from table 5 that core examination support (English language, Mathematics and Science) was not required by TD adolescents at KS4 (only one child required extra time and separate room due to a broken arm). However, access arrangements were required in some form for the majority of adolescents with SLI.

The most common type of access arrangement was the provision of extra time, which was given to half of this group. A third of the group was provided with a

Table 5. Level of KS4 examination support for those taking core subjects (English language, mathematics or science) for adolescents with specific language impairment (SLI) and typically developing (TD) adolescents

	Adolescents with SLI		TD adolescents	
	<i>n</i>	%	<i>n</i>	%
Reader for any subject	28/88	31.8	0/119	0
Scribe for any subject	8/88	9.1	0/119	0
Extra time for any subject	44/88	50.0	1/119	0.8
Other support for any subject	10/88	11.4	1/119	0.8
Any support for any subject	52/88	59.1	1/119	0.8

Table 6. Concurrent psycholinguistic profiles (standard scores) for adolescents with specific language impairment (SLI) who did and did not receive examination access arrangements at KS4

	Receiving examination access arrangements, <i>n</i> =52		Not receiving examination access arrangements, <i>n</i> =36	
	Mean (SD)	Range	Mean (SD)	Range
CELF-R Receptive subtest	80.3 (11.7)	65–115	96.4 (18.5)	65–130
CELF-R Expressive subtest	71.5 (8.3)	65–90	81.4 (11.4)	65–110
WORD Single Word Reading	81.7 (14.3)	53–109	95.8 (13.1)	63–120
WORD Reading Comprehension	75.4 (12.0)	51–114	86.0 (11.8)	65–109
WISC PIQ	80.8 (17.4)	48–132	95.5 (17.6)	57–134

CELF-R, Clinical Evaluation of Language Functioning – Revised; PIQ, performance IQ; SD, standard deviation; WISC, Wechsler Intelligence Scale for Children; WORD, Wechsler Objective Reading Dimensions.

reader, with smaller proportions (around 10%) being assigned a scribe and being provided with other types of support. As these are not mutually exclusive categories, 59% of the adolescents with SLI in total were provided with some type of support during their core examinations. Table 6 examines the psycholinguistic profiles of the adolescents with SLI who were and were not provided with support.

Those adolescents with SLI provided with access arrangements during examinations had significantly lower scores in all the assessments carried out for this study; PIQ ($F(1,83)=14.87$, $p<0.001$, partial $\eta^2=0.15$), receptive language ($F(1,83)=24.47$, $p<0.001$, partial $\eta^2=0.23$), expressive language ($F(1,83)=21.85$, $p<0.001$, partial $\eta^2=0.21$), single word reading ($F(1,82)=22.70$, $p<0.001$, partial $\eta^2=0.22$) and reading comprehension ($F(1,82)=17.87$, $p<0.001$, partial $\eta^2=0.18$) than those not provided with access arrangements. Mean group profiles showed ability in the impaired range (>1 SD below the mean) for those provided with support. The group profile for those not provided with support was in the normal range with the exception of expressive language which was impaired (standard score=81.4). However, large SDs indicate that this was not the case for all adolescents within the groups.

Interestingly, of those provided with KS4 access arrangements, the majority (92%) were in an education placement involving support and/or had a statement of SEN. Of those not provided with access arrangements, just less than half (46%) were in an educational placement involving support and/or had a statement of SEN.

In terms of the Persisting-SLI versus Resolved-SLI groups discussed earlier, provision of KS4 access arrangements (for those sitting the examinations) differed between groups (19% Resolved-SLI; 67% Persisting-SLI). The pattern is consistent with the assumption that those adolescents with Persistent-SLI are likely to require substantial and continual support throughout their secondary school examinations.

Adolescent opinions about their KS4 academic achievement

The participants' opinion about their KS4 examination results was available for 82 adolescents with SLI and 105 TD adolescents (after accounting for missing data and disregarding those who did not sit Level 1 or 2 KS4 examinations). In terms of satisfaction with their academic achievements, the vast majority (72/82, 88%) of adolescents with SLI reported that they were satisfied. A few (5/82, 6%) were not satisfied and a few (5/82, 6%) had mixed feelings. Once again, a similar pattern was observed for TD adolescents; 84/105 (80%) reported themselves to be happy with their results, with 10/105 (10%) being unhappy and 11/105 (11%) reporting mixed feelings.

Around half (43/82, 52%) of adolescents with SLI achieved the academic results they expected. Nearly one-third (25/82, 31%) achieved better than expected results and 17% (14/82) achieved worse than expected results. A similar pattern was observed for the TD adolescents; half of them (53/105, 51%) achieved the results they expected, with 29% (30/105) doing better and 21% (22/105) doing worse than expected. The actual GCSE attainment by level of expectation and satisfaction is presented in table 7.

Adolescents with SLI who reported themselves to be satisfied with their KS4 results had both a lower mean point score ($F(1,154)=114.93, p<0.001$, partial $\eta^2=0.43$) and achieved fewer number of grades A*-C ($F(1,154)=131.36, p<0.001$, partial $\eta^2=0.46$) than TD adolescents who reported themselves to be satisfied.

Similarly, in terms of level of expectation, the adolescents with SLI who reported they got the KS4 results that they expected achieved significantly poorer actual results in terms of both mean point score ($F(1,94)=75.93, p<0.001$, partial $\eta^2=0.45$) and number of grades A*-C achieved ($F(1,94)=80.1, p<0.001$, partial $\eta^2=0.46$) than the TD adolescents who reported that they got the results they expected. Thus, it appears that the adolescents with SLI had lower expectations of their KS4 examinations and were satisfied with lower outcomes than the TD adolescents.

Opinions about academic achievement were also available for 22 adolescents with no Level 1 or Level 2 KS4 qualifications at the end of secondary schooling. Discounting two adolescents with no qualifications at all, 18/20 (90%) had the results they expected and 19/20 (95%) reported that they were happy with these results.

What activities are adolescents engaging with post-16?

Post-16 activities data were obtained for 106 of the adolescents with SLI and 106 TD adolescents. The vast majority of adolescents with SLI (91%) remained in education following the end of compulsory education; 8% were in full-time employment and 42% had weekend/casual/additional part-time employment. This

Table 7. Academic achievement at KS4 (mean and standard deviation) by level of expectation and level of satisfaction for adolescents with specific language impairment (SLI) and typically developing (TD) adolescents

	Adolescents with SLI, $n=82$		TD adolescents, $n=105$	
	KS4 point score	Number of A*-Cs	KS4 point score	Number of A*-Cs
<i>Level of expectation</i>				
As expected	224.3 (107.5)	1.7 (2.5)	424.7 (115.7)	7.4 (3.5)
Better	265.6 (152.1)	3.7 (3.6)	432.2 (99.5)	8.2 (2.9)
Worse	222.6 (104.2)	1.1 (1.5)	350.8 (296.8)	5.0 (4.0)
<i>Level of satisfaction</i>				
Satisfied	244.7 (124.8)	2.3 (3.0)	438.4 (100.8)	8.0 (3.0)
Not satisfied	149.2 (85.5)	0.2 (0.4)	247.0 (90.1)	1.2 (2.0)
Mixed feelings	208.0 (86.5)	0.6 (0.9)	354.5 (106.8)	5.4 (3.4)

latter employment was in addition to their studies and generally comprised evening and weekend work. There were no cases of adolescents with SLI who were not in some form of employment, education or training. Among the TD adolescents, 82% remained in education; 13% were in full-time employment and 3% were not in employment, education or training. Part-time employment was reported by 55% of the TD adolescents.

Of the 96 adolescents with SLI who continued with their education, 53% were placed with support. The majority (26%) were on a course leading to a Level 2 qualification, with 14% on a Level 1 course and 12% on a Level 3 course (age appropriate). A substantial proportion (23%) was attending an Entry Level or pre-Entry Level course and 3% were on a course which did not lead to any qualification. The large majority (95%) reported being happy with their course overall and 84% were happy with the way the course was delivered. Those that were unhappy with delivery reported the reason as the course being 'too fast' (4%), requiring 'too much writing' (4%) and 'other reason' (7%).

In comparison, of those 87 TD adolescents who remained in education, none were placed with support, as was expected. The majority (85%) were on an age-appropriate course leading to a Level 3 qualification. A small proportion (12%) was on a course leading to a Level 2 qualification and 3% were on a course leading to a Level 1 qualification. Satisfaction with the course overall was expressed by 87% of the TD adolescents with 91% being happy with the way the course was delivered. Those that were unhappy with delivery reported the reason as the course being 'too fast' (2%) and 'other reason' (7%).

Of those adolescents who continued to full-time employment following the end of compulsory schooling, all reported that they were in paid, rather than voluntary, employment. Of the nine adolescents with SLI in full-time employment, eight were in a manual position (six indoor, two outdoor) and one was in a clerical/technical position. Of the 16 TD adolescents in full-time employment, nine were in a manual position (eight indoor, one outdoor), two were in a clerical/technical position and one was in a care-based position. Among the adolescents with SLI who were in employment, most (7/9) were happy with their job and this was true of 15/16 TD adolescents. Only one out of the nine adolescents with SLI and six out of 16 TD adolescents had turned down a place on an educational course to take the job.

For those 29 adolescents with SLI who left secondary schooling without Level 1 or 2 qualifications, it was found that 96% remained in education following the end of compulsory schooling and 4% went on to full time employment. Around one-quarter (26%) reported having part-time/weekend employment in addition to their educational course. Of those remaining in education, 91% were placed with support. It was found that 18% were on a course not leading to any qualification and 64% were on an Entry Level/pre-Entry Level course. There was 9% on a Level 1 course and 9% on a Level 2 course. None of these adolescents were on an age-appropriate course leading to a Level 3 qualification.

Post-16 courses taken by the adolescents

Level of post-16 course was related to examination outcome (GCSE/GNVQ) in terms of grades achieved and overall point score. Table 8 presents this information for the adolescents with SLI and TD adolescents.

Table 8. End of compulsory education examination achievement (mean and standard deviation) by level of subsequent post-16 course for adolescents with specific language impairment (SLI) and typically developing (TD) adolescents

	Adolescents with SLI	TD adolescents
<i>Post-16 Level 3 course (age appropriate)</i>	<i>n</i> =15 (16%)	<i>n</i> =74 (85%)
Grades A*-C achieved	6.8 (3.2)	8.7 (2.5)
Grades D-G achieved	2.8 (3.0)	1.7 (2.0)
Point score	398.7 (92.0)	456.7 (93.4)
<i>Post-16 Level 2 course</i>	<i>n</i> =31 (33%)	<i>n</i> =10 (11%)
Grades A*-C achieved	1.3 (1.6)	3.2 (3.0)
Grades D-G achieved	5.6 (2.7)	5.8 (2.9)
Point score	236.2 (97.4)	307.8 (72.9)
<i>Post-16 Level 1 course</i>	<i>n</i> =17(18%)	<i>n</i> =3(3%)
Grades A*-C achieved	1.1 (1.4)	3.7 (4.7)
Grades D-G achieved	4.7 (3.0)	5.7 (4.2)
Point score	188.5 (75.0)	313.3 (72.9)
<i>Post-16 Entry Level/pre-Entry Level course (practical life skills courses)</i>	<i>n</i> =28 (29%)	<i>n</i> =0
Grades A*-C achieved	0.1 (0.3)	-
Grades D-G achieved	2.7 (3.2)	-
Point score	131.9 (65.9)	-

Four adolescents with SLI were taking a course not leading to any qualification.

The majority of those taking age-appropriate Level 3 courses were typically developing adolescents.

Where did adolescents go for their post-16 education?

Of those young people who opted to continue their education post-16, 24/96 (25%) of adolescents with SLI and 30/87 (35%) of TD peers were in a school placement post-16. The remainder (SLI, 72/96, 75%; TD, 57/87, 65%) went to a college placement. This distribution between school and college placements was similar for the adolescents with SLI and the TD adolescents ($\chi^2(1)=1.97, p=0.16$).

Of those attending mainstream school without support at the end of compulsory schooling, 22/29 (76%) went on to further education. Of these, 5/22 (23%) were in a post-16 school placement (all five without support) and 17/22 (77%) were in a post-16 college placement (15/17 without support, 2/17 with support).

For those attending mainstream school with support at the end of compulsory education, 45/54 (83%) went on to further education. Of these, 9/45 (20%) were in a post-16 school placement (6/9 without support, 3/9 with support) and 36/45 (80%) were in a post-16 college placement (15/36 without support, 19/36 with support, 2/36 in a special college).

Secondary school placement at 16 years made no difference to whether the adolescents with SLI did or did not enter further education ($\chi^2(2)=2.60, p=0.272$). The majority of young people with a history of SLI continued on to further education (between 76 and 83%). There was also no difference in type of further education in terms of school or college placement as a function of secondary school placement at 16 years ($\chi^2(2)=2.05, p=0.356$). The majority of young people with a history of SLI continued their post-16 education in college settings.

Discussion

Educational attainments of adolescents with SLI: the wider context

At the end of compulsory schooling, while students were working towards their qualifications, three-quarters of the language-impaired sample in the Manchester study were receiving some form of special education. The provision of special education had been broadly consistent throughout their educational life span. However, even those who were not receiving special education and were attending mainstream schools without support lagged behind their peers. These results are consistent with previous research, which documents poorer educational performance of adolescents whose language appeared to have resolved as compared with age-matched TD peers (Snowling *et al.* 2001, Dockrell *et al.* 2007). These findings point to the need to monitor carefully the educational experiences of adolescents with a history of SLI (whether or not they have resolved their difficulties) who are not receiving specialist support; these young people are at risk of educational underachievement.

The picture of poorer attainment was more pronounced for those adolescents with SLI in mainstream schools who were receiving special education support. A proportion of these adolescents (7%) were not entered for any examinations at the end of compulsory education. The adolescents with SLI who were receiving their special education in specialist settings, i.e. language units/schools or special units/schools, obtained the poorest results and had the highest rate of non-entry for core examinations at 16 years (70%). Thus, there were differences observed in both access to examinations and outcome as a function of current educational placement at 16 years. Those adolescents receiving special education in specialist establishments were entered much less often and, if they were entered, they obtained lower results than their typically developing peers and their peers with a history of SLI who were attending mainstream settings.

Why may this be the case? The analyses of covariance provide us with some interesting insights. Individual characteristics such as non-verbal IQ, literacy and language skills, as well as family related factors such as maternal education, are predictive of educational attainment. When we controlled for these variables, some of the differences in attainment between groups of adolescents in different educational contexts disappeared. Thus, adolescents with SLI attending mainstream schools with support perform similarly in their examinations to adolescents with SLI attending mainstream schools without support once individual differences and (to the extent that maternal education is a proxy for socio-economic status (SES)) family circumstances were controlled for. However, the application of such controls did not wipe out differences in educational achievement between adolescents who were receiving their special education in specialist establishments versus those who were receiving it in mainstream settings.

These findings raise some important issues. On the one hand, it is likely that other within-individual characteristics may play a role. Adolescents with SLI attending specialist settings may have difficulties in other areas not directly measured in this study, for example, behavioural–emotional difficulties, which in turn may affect examination entry and attainment (Dockrell and Lindsay 2000, Dockrell *et al.* 2007). In addition, potential institutional factors may be influencing the academic achievement of these individuals. Further research is needed to examine these potential factors in more detail to develop a fuller picture of these young people's needs and outcomes in later adolescence. The regular evaluation of the provision of special education for young people with a history of SLI within different educational settings continues to be a priority.

All participants were in receipt of a statement of SEN at 7 years of age and this figure remained high throughout secondary schooling, providing further evidence of the persisting difficulties of the large majority of adolescents with a history of SLI (Stothard *et al.* 1998, Young *et al.* 2002). Having said this, it is still of concern that a proportion (albeit small) of young people with Persisting-SLI were attending mainstream schools with no specialist support for their education. This could have been due to a variety of factors including lack of resources. Law *et al.* (2000) note that service managers report that that prioritization of service delivery is usually determined by severity of need. The present data are broadly consistent with the managers' description but do suggest that, nonetheless, small proportions of children in need are slipping through the net. It is important that in practice mechanisms are put in place so that these young people receive the consistent educational support they require to minimize educational under-achievement.

Provision of access arrangements during core examinations

As would be expected, the present study found a clear difference in core subject access arrangements provided for adolescents with and without a history of language difficulties. Over half the adolescents with SLI were provided with some form of examination support, with allocation of extra time being most common. This is a consistent longitudinal profile. However, the provision of support was lower than that found for the same sample when they took examinations at 11 years of age (Conti-Ramsden *et al.* 2002) where almost three out of four children had access arrangements made for them. Adolescents provided with examination support had significantly lower non-verbal IQ, language and literacy than those not provided with examination support. Thus, education providers at the end of compulsory education appear to be targeting support for young people with key difficulties in a number of areas. Even so, there was not full overlap between the provision of access arrangements during examinations and special educational provision. Of those receiving examination support, the majority (90%) were in an educational placement involving support and 78% had a statement of SEN needs. Of those not receiving examination support, around one-third (35%) were in an educational placement involving support and around one-third (38%) had a statement of SEN. This suggests that the provision of access arrangements is not entirely based on educational placement type or receipt of statement of SEN. These results, coupled with the above finding of a reduction in the proportion of young people with a history of SLI receiving examination support from 11 to 16 years of age, suggest that practitioners need to examine in more detail whether access arrangements are being made for all the adolescents who have need for them at the end of compulsory secondary education.

There were high levels of satisfaction with examination outcomes among our samples (88% of adolescents with SLI and 80% of TD adolescents were satisfied). This is consistent with results reported by Felsenfeld *et al.* (1994) in the USA. Similar numbers of adolescents in each group achieved the results they expected (52% of adolescents with SLI and 51% of TD adolescents). Adolescents with SLI had lower expectations in terms of outcome and were satisfied with lower actual outcomes than the TD adolescents. Strikingly, the mean examination point score of adolescents with SLI who described themselves as 'Satisfied' with their achievements was virtually identical to that of TD adolescents who described themselves as 'Not satisfied' (245 and 247, respectively). The group of adolescents with SLI who reported 'Mixed feelings' had a mean point score that was just over half of that of the TD adolescents who had 'Mixed feelings'.

A positive interpretation of these results is that they suggest that adolescents with SLI were not frustrated with their educational achievements. Indeed, the majority were satisfied with their results. Nevertheless, adolescents with SLI had lower expectations in terms of outcomes and were satisfied with markedly lower outcomes than their TD adolescents. This suggests that pupils with language impairments who are performing relatively poorly in the school system do respond by setting their sights lower. In turn, lower targets enable them to derive satisfaction from reaching modest goals. This raises fundamental questions: Are adolescents with SLI simply being realistic about their potential educational attainments or could they profit from encouragement to set higher expectations? How can educational systems best balance the identification of children in need of specialist support against the risk of guiding those individuals to expect, and be satisfied with, poorer levels of attainment? These are difficult issues calling for further research and policy debate.

Educational/training activities post-16

An important finding of the present study is that, contrary to what would be expected from the literature available so far, adolescents with SLI were not less likely to pursue further education. This study documented high levels of engagement with post-secondary education in the adolescents with SLI, which is in contrast to most of the previous literature (e.g. Hall and Tomblin 1978, Records *et al.* 1992, Felsenfeld *et al.* 1994) but consistent with other recent findings (Dockrell *et al.* 2007). Indeed, the vast majority of adolescents with SLI in the present study remained in education following the end of compulsory education. However, this is not to confirm that educational outcomes are invariably positive. We have stressed that there is considerable heterogeneity. What the finding does indicate is that the further education system in England is now recruiting increased proportions of students who have histories of SLI, who have in some cases fared poorly in key educational assessments, and who may tend to expect and be satisfied with low levels of attainment. The needs and progress of these young people call for careful research attention.

Another interesting indicator of recent changes provided by our findings is that over 40% of our sample with a history of SLI had weekend/casual part-time employment in addition to their studies, a proportion very similar to that found amongst TD peers. This contrasts, for example, with the results of Snowling *et al.* (2001), who found that only one child in their cohort was involved in part-time

employment. On the one hand, our evidence suggests the encouraging inference that new opportunities for earning supplementary income are becoming available to young people with communication difficulties. However, more information is required before we can conclude that this is a wholly positive development. Previous research into the correlates and effects of part-time employment during adolescence has shown mixed outcomes: young people can gain skills in self-management and reliability but they can also acquire cynical workplace attitudes, suffer disrupted or reduced sleep, experience higher levels of stress and poorer social and leisure lives (Steinberg *et al.* 1993). Furthermore, Steinberg *et al.* found that, for adolescents already at risk of adjustment difficulties and poor scholastic performance, part-time work can exacerbate problems. Barling *et al.* (1995) showed that detrimental effects are associated with poorer quality jobs. Further research is needed to determine whether young people with SLI are more likely to be enlisted in the least skilled and least rewarding types of part-time employment, but the findings on adult employment suggest that this is indeed very likely (Records *et al.* 1992, Felsenfeld *et al.* 1994).

In conclusion, young people with a history of SLI in the 2000s appear to have more opportunities to remain in education post-16 years than they did in the 1990s. The educational opportunities for young people with a history of SLI at this time are varied and this is the case, at least in part, due to the availability of support for these young people post-16 years. In our sample, approximately half the young people with a history of SLI were receiving educational support at this stage. However, there are two important issues to consider for future research and the development of policy/practice. First, of those young people with a history of SLI continuing with their education, only 16% were on an age-appropriate Level 3 course (compared with 85% of the TD peers). Is this the sort of proportion we ought to expect from a sample of young people with a history of SLI and recognized persisting educational needs or can this figure be improved upon? Second, the finding that most young people with a history of SLI remain in education post-16 calls for further research with regard to their educational attainment at 18 years, the identification of and provision for their continued needs, and the ways in which other changes in their circumstances (such as engagement in part-time work, study demands) impact on their wellbeing and progress. Finally, fuller information is needed on the opportunities available for these young people post-18 years and the challenges they face as they enter the adult world.

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