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Final Report - Surrey Communication and Language in Education Study

2011-2020


Surrey Communication and
Language in Education Study

Contents

1. Preface
2. Key findings
3. What is Developmental Language Disorder?
4. About SCALES
5. Impact and Future Challenges
 'Narrowing the gap'
6. Impact and Future Challenges
 Language for Mental Health: Emotion Recognition
7. Impact and Future Challenges
 Language for Mental Health: Emotion Regulation
 RADLD & DLD day

Annex

1. References
2. SCALES team
3. Use of SCALES Data
4. SCALES timeline



Report drafted by [4 Star Impact](#)



Forward

In November 2016, Professor Courtenay Norbury gave a presentation on the SCALES study to the All Party-Parliamentary Group on Speech and Language Difficulties.

The evidence she presented showing the high prevalence of developmental language disorder helped to galvanise the support of MPs and Peers. Since then SCALES has provided valuable evidence of the persistence and wide ranging consequences of speech and language difficulties, which will help us push for crucial policy changes.

I am pleased to welcome the valuable contribution SCALES has made, both to the body of evidence around developmental language disorder, and to awareness-raising nationally and internationally through events such as International DLD Day.

I have long believed that the ability to communicate is an essential life skill for all children and young people, and that it underpins a child's social, emotional and educational development.

As the first UK longitudinal study to follow the language development of a large and inclusive cohort of children through their entire primary education, SCALES provides comprehensive and robust new evidence on the prevalence and consequences of language difficulties.

However, the study findings also highlight gaps in current provision, gaps that must be addressed by policy makers and commissioners, professionals and service providers if we are to deliver better outcomes for children and young people and help them avoid the negative impact on their later mental and social wellbeing and employment that are a well-documented consequence of language difficulties.

As the body of research-based evidence continues to grow, so does our understanding and our ability to find solutions and interventions that work. I hope that the wider community of policy makers and specialists in childhood speech and language can build on the valuable work done by the SCALES team and their fellow researchers to develop effective and sustainable interventions that allow all children to thrive.



Geraint Davies, MP
Chair of the APPG on Speech and Language Difficulties

Preface

It has been an enormous privilege to lead the SCALES project for these 10 years. The data from SCALES has been used to drive a global campaign to transform the way DLD is understood and discussed by individuals, practitioners and policy makers.

The headline message to emerge from the study is that it is extremely challenging to narrow the gap in language between children with DLD and their peers, and that this gap can have serious implications for children's academic achievements and emotional, social and mental wellbeing.



Professor Courtenay Frazier Norbury

The SCALES team are talking to educators, clinicians, and family agencies to consider different options for providing on-going support in a cost-effective way. For more information contact Professor Courtenay Norbury; c.norbury@ucl.ac.uk

Acknowledgements

We are indebted to the primary and secondary schools across Surrey and beyond who have facilitated our project, and of course our SCALES families, who have brought their enthusiasm and support throughout. This study would not have been possible without generous support from the Surrey Education Community. We thank especially Jennifer Charters and Virginia Martin for helping us design the study and the strategies to engage Surrey schools, and Cheryl Dyer, Barbara Paulger, and Wendy Mumford for continuing to serve as advisors to this project, improving our understanding of the practical impacts of this work and supporting dissemination to families, practitioners and policy makers. SCALES has been funded by Wellcome(WT094836AIA) and Economic and Social Research Council (ES/RO03041/1) grants to Courtenay Norbury (Principal Investigator). Additional funding from NIHR KCL/South London and Maudsley NHS Foundation Trust Biomedical Research Centre and Senior Investigator Awards NF-SI-O617-10120 (Pickles) and NIHR200242 (Simonoff) and a University of Surrey Faculty Research grant (Gooch).

Key Findings

The Surrey Communication and Language in Education Study (SCALES) is a 10-year longitudinal study of language development in 590 children from ~300 schools across Surrey (United Kingdom), followed from age 4-13yrs. SCALES has created the first evidence-based picture of the prevalence, persistence and impact of Developmental Language Disorder (DLD) in the UK.



The most significant findings to emerge from the study are:

DLD is prevalent

SCALES figures estimate that 7.58% of children have DLD and a further 2.34% have a language disorder associated with another biomedical condition. This represents on average two children in every classroom.¹

DLD is persistent

SCALES identified a 2-3 year language gap between those with language disorder and their peers. All children saw improvement in language during primary school, but that 2-3 year language gap remained into secondary school.²

DLD is associated with academic under-achievement

Children with language disorder perform less well than their peers on academic milestones at every stage. Only ~10% of children with language disorder achieved a 'good level of development' on the Early Years Foundation Stage Profile,¹ 20% achieved expected or greater progress on Phonics, and 33% on Year 2 SATS. Children with language disorder are also very likely to have challenges with learning to read, which presents new obstacles to academic success as they get older. By Year 3, 63% of children with DLD were struggling with reading and scored in the bottom 16th centile or below on measures of word reading and/or reading comprehension. Language is essential for accessing all areas of the curriculum.

DLD at school entry increases risk of mental health challenges

At school entry, teachers were twice as likely to report social, emotional, and behavioural problems in children with DLD compared to their peers.¹ When language disorder was associated with another biomedical condition, 50% of children had clinically significant difficulties. These challenges persist throughout primary school.⁴ During adolescence, parents report that their children with language disorder experience greater symptoms of depression and anxiety relative to peers.⁵

DLD is associated with poorer emotion recognition and regulation in adolescence

SCALES has tested mechanisms that might help us understand the link between language and mental health. SCALES demonstrated that language skills at age five predicted the ability to recognise emotions from faces and voices in early adolescence.⁶ Early language also predicted children's ability to regulate their emotions using verbal strategies.⁷ Many children with language disorder were unable to use regulation strategies due to language demands of 'self-talk' and thinking about the future. Current therapies that aim to help children manage their emotions using 'self-talk' may not be optimal for many children with language disorder.

What is Developmental Language Disorder?

Developmental Language Disorder (DLD) is a persistent neurodevelopmental condition that can lead to increased risk for academic underachievement, poor mental health and (in the longer term) unemployment. Children with DLD do not have another biomedical condition (like autism or Down syndrome), but may have difficulties with other aspects of development, for example developing fine motor or attention skills. The SCALES cohort included children with DLD and children with language disorder that occurs with another biomedical condition.

During the school years, children with DLD show similar degrees of language improvement as their peers, but start school with a language level that is about 2 years behind. That gap remains throughout primary school. They may struggle to understand what is said to them and to articulate their own thoughts and feelings. This means they find it harder to follow instructions, express their needs or engage in play with their peers.



DLD or SLI?

RA DLD RAISING AWARENESS OF DEVELOPMENTAL LANGUAGE DISORDER
Find out more about DLD by visiting www.radld.org

The term Developmental Language Disorder was agreed by a multinational team of experts in the field to address a lack of consistency in the terms used to describe children with language difficulties. This term replaces 'specific language impairment' and has been widely promoted through public awareness events such as International DLD Awareness Day (14th October 2022). DLD has become the standard term used internationally to diagnose, research and discuss the condition.



The term 'Specific Language Impairment' led to much confusion and controversy about the role of non-verbal reasoning in diagnosis and treatment. For a long time, children with a low non-verbal reasoning score were excluded from a diagnosis and specialist support for language impairment.

SCALES found that for children with DLD, there was no difference in clinical presentation between those who had high and low non-verbal reasoning scores. However, children who had both language disorder AND another biomedical condition tended to have greater impairments in language and non-verbal reasoning, and more behaviour difficulties. Importantly, a child's non-verbal reasoning was not associated with rate of language progress during primary school. CATALISE therefore recommended that non-verbal reasoning is removed from the diagnostic criteria for DLD and is not used to make decisions about accessing specialist education or clinical support.

About SCALES

SCALES took place from 2011 to 2020 and involved ~300 schools across Surrey. The study was conducted in two phases. It was funded by the Wellcome Trust and ESRC.

Phase 1

Screening language at school entry, and in-depth follow-up from age 5 to 8 years old.



There is considerable variation in children's language development and how children use language to learn and communicate with others. This phase of the SCALES study sought to understand why these variations occur, and how language skills are related to school and social success over time. To do this, the study sampled the language and communication skills of a large and diverse group of children, and then traced the language development of some of these children in more detail and over a longer period of time.

The screening phase took place in Summer term 2012. Teachers in all mainstream primary schools in Surrey were invited to complete an online questionnaire for each child in their reception class. A total of 7,267 questionnaires were received from 150 schools, providing information about each child's:

- everyday language skills (i.e. clarity of speech, range of vocabulary, complexity of sentence grammar, ability to tell stories, understanding of jokes and figurative language),
- social, emotional and behavioural development
- Early Years Foundation Stage Profile (which assesses key areas of learning and development in the early years).

From this screened cohort, 590 children, representing the full range of language and communication abilities were selected for in-depth assessment of language, social, and cognitive skills. Each child was seen at their school by a trained member of the SCALES research team at 2 time points: Year 1 (5-6 years old) & Year 3 (7-8 years old).

Parents and teachers also responded to a questionnaire at each time-point, providing further information about each child's development.

Phase 2

A longitudinal follow-up focussing on emotional, social and mental health outcomes from age 8 to 13 years.

Phase 2 sought to understand the links between children's talking and listening skills and their future social, emotional, and mental health (SEMH). In particular the study investigated how children use their language skills to help manage their own feelings and behaviours and to help them understand the feelings and behaviours of others.

A cohort of 499 children remained active in the study at the end of Phase 1. To complement the in-depth assessments of language, attention and reasoning/thinking skills conducted in Year 1 and Year 3, the team conducted two further assessments of the same children at a critical time covering their transition to secondary school and the onset of adolescence: Year 6 (10-11 years) & Year 8/9 (12-13 years).



Understanding	Speaking
Receptive one word picture vocabulary test (ROWPVT)	Expressive one word picture vocabulary test (EOWPVT)
Test for reception of grammar (TROG)	School-Age Sentence Imitation Test-English 32 (SASITE32)
ACE Narrative: Story comprehension	ACE Narrative: Story re-telling

The six language assessments in Phase 1

Impact of Covid-19:

When schools in England closed on 20th March 2020 due to the Covid-19 pandemic we had completed the Year 8/9 assessments for 197 of the 464 children still actively participating in SCALES. We were able to conduct assessments online with a further 49 children during lockdown (March-Sept 2020).

We could not complete 131 scheduled assessments due to Covid. This was sometimes due to difficulties contacting families, but also to the challenges many families experienced with space, technology or engaging children online. A further 21 families opted out and 66 assessments were unable to be arranged due to reasons unrelated to Covid.

Impact and future challenges

'Narrowing the gap'

In the UK, the SCALES data has already been used to evidence campaigns that have resulted in revised government guidance to commissioners around identifying and supporting people with language disorder. Our findings suggest that further changes to early years provision and language support are urgently needed to break the link between DLD and later academic and work challenges and to better support social and emotional wellbeing for these young people. [SCALES showed starkly that the current system is not optimal for many children with DLD and the consequences can be significant.](#)

The best overall predictor of academic success in the study was language competence, and yet [the gap in language ability is not closing over the course of primary school.](#) Some children will therefore need on-going support to meet their language and learning needs. Non-verbal reasoning, neighbourhood deprivation and social, emotional and behavioural deficits predict language scores, but none of these factors predict language growth. This suggests that schools do a great job of ensuring all children can learn, but those with language disorder may need additional and on-going specialist interventions to accelerate their learning.

Future challenge:

'Narrowing the gap' in language skills is very difficult and it is likely that some children will need on-going and specialist support to meet their language and learning needs. Providing on-going support in a cost-effective way presents some challenges.

Recommendation

Investing in language interventions in the early years is a great first step, but on its own will not be enough to prevent significant problems in adolescence and adulthood. It is important for researchers, educators, clinicians and family agencies to work collaboratively to develop longer-term sustainable interventions, improve access to interventions and educate and develop workforce knowledge and skills around DLD.

SCALES Phase 1 data indicated that the youngest children in the class were more likely to be rated by teachers as having poorer language skills, greater behaviour difficulties, and were less likely to achieve curriculum targets at the end of their first year in school.

Future challenge:

The youngest children in a class might not have sufficiently developed oral language skills (i.e. vocabulary, grammar, narrative) to meet the demands of the early years curriculum. The UK is unusual in sending children to school at such a young age (4 years)

Recommendation

We suggest that the first year of school (Reception Year) should focus on developing oral language skills so that children have a good foundation of language for learning, for literacy and for managing social relationships. It is important to improve quality of language input in early years and increase exposure to the kinds of language that can be applied to all areas of the National Curriculum.

The SCALES study has received widespread interest from the media, professional organisations and policy makers. The findings have informed key reports that advocate a change in approach to supporting young people with Speech, Language and Communication Needs.

How misbehaviour can be a sign of language disorder

Roughly two children in every class will have a language disorder – here's how to identify them and give support

Jon Severs

27th June 2018 at 3:03pm

Share this



Times Educational Supplement Podcast: June 2018



In November 2016, Professor Courtenay Norbury gave a presentation on the SCALES study to the All Party-Parliamentary Group on Speech and Language Difficulties, helping to galvanise the support of MPs and peers.

Equip teachers to support children with language disorders in the classroom

Courtenay Norbury and Emma Broddle

It is estimated that two children in every class of 30 suffers from language disorders but their difficulties are often mistaken for bad behaviour.

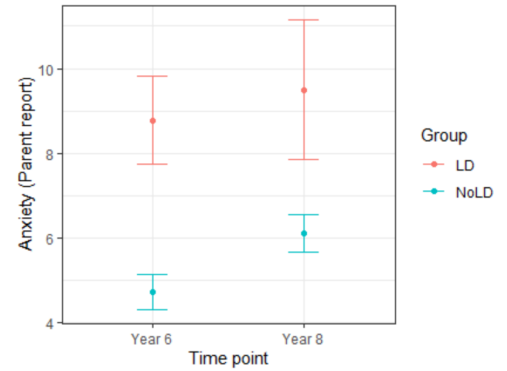


The Guardian: Nov 2016



Language for Mental Health

SCALES asked parents and children to report on children's mental health during their transition to secondary school (Year 6-8). Parents reported elevated symptoms of anxiety and depression in children with DLD in Year 6 that remained as children transitioned to secondary school. Children with DLD did not self-report elevated symptoms compared to their peers. This disagreement between parent and child report may suggest that children have difficulties self-reporting mental health symptoms in questionnaires.



Future challenge:

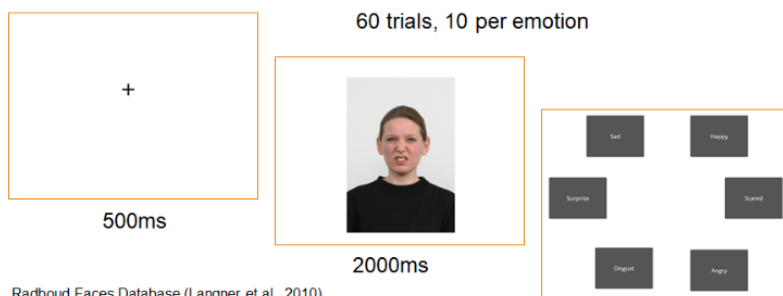
Approximately 10-50% of children with Language Disorder have clinically significant levels of social, emotional and behavioural challenge and are at double the risk for poor mental health in adolescence.²¹

Recommendation

All school-based professionals should be alert to signs of poor mental health in children who may not be able to directly communicate their thoughts and feelings.

Language & emotion recognition

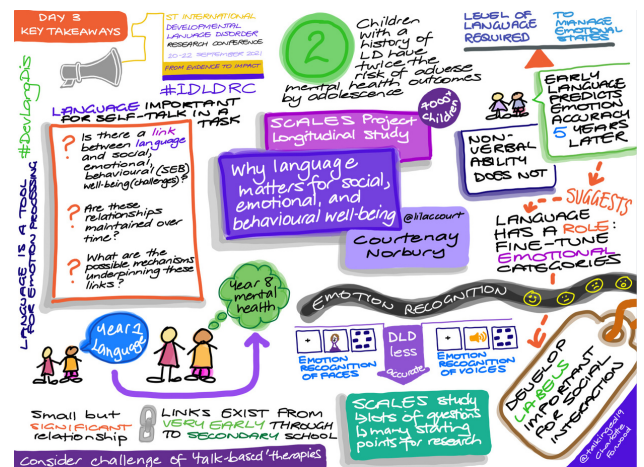
Emotion recognition is vital for navigating social situations and regulating our own behaviour, and therefore key for good mental health. We explored the extent to which having labels for emotions helps us to learn about emotion categories/ emotion recognition. When the SCALES children were in Years 6 & 8 they completed two tasks to measure their emotion recognition. In one task they saw pictures of faces displaying 6 different emotions (happy, sad, surprised, scared, disgusted and angry). In the other they heard vocal sounds for the same emotions (e.g. crying for sad). After each stimulus they were asked to select the label that matched the face/sound.



Radboud Faces Database (Langner et al., 2010).
Emotional vocal sounds (Sauter et al., 2010).

SCALES showed that children who met the criteria for DLD in Year 1 were less accurate in their emotion recognition in both Year 6 (age 10/11 years) & Year 8 (age 12/13) relative to their peers.⁶ We also found that language competence in Year 1 predicted emotion accuracy in Years 6 & 8 (for children who took part in at least 1 emotion task).

Language for emotions may be particularly hard for children with DLD because it describes abstract concepts and is often non-literal ("feeling blue"). Problems deciphering the language for emotion may lead to problems developing a good understanding of our own emotional states, and the emotional states of other people, which in turn may impact social interactions and mental health.



SCALES data presented at the 1st IDLDRC conference 2021 by Courtenay Norbury and drawn by Dr Charlotte Forwood @talkinged19 (twitter)

SCALES is the largest study so far to demonstrate that, as a group, children with DLD have problems with emotion recognition that are specifically associated with language ability rather than cognitive ability more generally.

Future challenge:

Children with language disorder are more likely to have difficulties establishing and maintaining friendships with peers. In addition, impairment in emotion identification may be one mechanism by which language disorder in early childhood predisposes children to later adverse social and mental health outcomes.

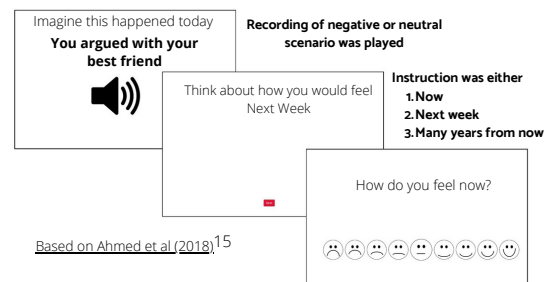
Recommendation

Teaching and/or interventions should target language skills that are vital for social, emotional and mental health, such as the language of emotion.

Language & emotion regulation

Thinking about an event from a future perspective has previously been shown to reduce the distress of a negative situation; a strategy we commonly use to get through tough times - tomorrow could be better! In Year 6, SCALES tested children's ability to regulate their emotions after listening to negative scenarios. Each child was asked to think about how they would feel about the scenario 'now', 'next week' or 'many years from now'; a process known as **temporal distancing**.²²

The further into the future children imagined themselves, the less negative they reported feeling about the current scenario. This shows that they were able to successfully regulate their emotional response. Language skills in Year 1 predicted how successful our adolescent participants were in regulating their emotions using this temporal distancing strategy. Many children with language disorder, particularly those with additional conditions, were unable to complete the task, in part because it requires children to use language to think about pretend or future events. This is really challenging! However, when children had sufficient language to engage in future thinking, they were able to use this strategy to reduce their negative feelings about the situations.



SCALES is the first study to explore whether children with DLD have problems using strategies involving self-talk to regulate their emotions.

Future challenge:

Children with Language Disorder may not have sufficient language to engage in 'self-talk therapies' that are often offered to young people who are referred to child and adolescent mental health clinics.

Recommendation

Researchers & Practitioners need to focus on emotion recognition and regulation, as these skills are important for maintaining good mental health. In particular, children with language disorder need to develop words, grammar and story-telling skills that allow them to talk about abstract concepts and events that are removed from the 'here and now'. This will allow children to reflect on the past and imagine the future. Mental health practitioners should also ensure that therapy materials are adapted to be accessible for children with language difficulties.

RADLD and DLD Day

RADLD (Raising Awareness of Developmental Language Disorder) is a campaign aimed at raising awareness and advocating change in the diagnosis of DLD. Their website features a host of resources that include findings from the CATALISE and SCALES projects.



<https://radld.org/>



As part of Children's Mental Health Week 2020, we released our 'Words for Wellbeing' video, funded by our ESRC research grant and a British Academy Grant to [Dr Shaun Goh](#). It's been viewed over 13,000 times!

The organisation marked the publication of the CATALISE paper in 2017 by launching the first DLD Day aimed at publicising the new terminology, spreading key findings and reaching out to the worldwide community of teachers, SLTs, parents and children. Now in its 5th year, DLD Day has 759 ambassadors representing 48 countries, with resources translated into 28 languages.

RADLD's [YouTube channel](#) contains useful short information videos, including one on why language is important for mental health. You can follow the campaign on [Facebook](#) and [Twitter](#).

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Annex 2: The SCALES team

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*Funded by University of Surrey Faculty Research fund grant to Debbie Gooch

Annex 3: Use of SCALES data

What happens to your data?

Publicly funded research studies, including SCALES, are often required to make their anonymised research data openly available for other people to access. Some journals require that data are deposited when papers are published. This allows other researchers to repeat our analyses and learn from the information we have provided.

We will store SCALES data in the UK Data Archive, which allow other researchers to download our datasets. This improves the value for money of research studies, because other researchers can answer new research questions using existing data, rather than having to get more money to assess more children on similar measures. For instance, in SCALES we are very interested in how language changes over time. Another research team might be specifically interested in how early attention skills change over time. Because we measured attention as well as language at every time point, these researchers could use our data to answer this question, saving lots of time and money.

We have also collected a large number of language samples (stories the children tell in relation to picture prompts). We generally measure the amount of information children convey in these stories, but other researchers, like linguists, could look in more detail at the words and sentence structures children use. By collecting these stories at multiple time points, it is easier to see how these skills develop over time. Such information could help with the identification of new tools for deciding when children need extra help with language.

Any data that we deposit is anonymised. This means that we carefully go through the database to remove any information that could enable individual children, families or schools to be identified. This would include removal of names, addresses/phone numbers/emails, dates of birth, school names, voice or video recordings, any specific information about diagnosis.

child	scales_scf	schooltype	q5gender	age_mont	q9relator	q9relator	q10eal	q10mainli	q11school	gonogoco	gonogoun	gonogoatt	gonogoex	gonogo_t	gonogo_a	gonogo_c	rt_trials	scort_acc
5986	971	Mainstream	Female	61	Class teacher	Monolingual	No	Yes	5	5	No	110	32	1	30	24		
7788	5605	Mainstream	Male	66	Class teacher	Monolingual	Yes	Yes	4	5	No	110	22	1	30	26		
7536	5894	Mainstream	Female	65	Class teacher	Monolingual	No	Yes	3	4	No	110	17	1	30	22		
1149	7132	Mainstream	Male	70	Class teacher	Monolingual	No	Yes	5	5	No	110	30	1	30	29		
6963	8312	Mainstream	Male	60	Class teacher	Monolingual	No	Yes	3	5	No	110	24	1	30	23		
6221	4219	Mainstream	Male	63	Class teacher	Monolingual	Yes	Yes	4	3	No	110	14	1	30	27		
3514	1976	Mainstream	Male	66	Class teacher	Monolingual	No	Yes	5	5	No	110	29	1	30	24		
6446	4722	Mainstream	Male	69	Class teacher	Monolingual	Yes	Yes	3	5	No	110	36	1	30	20		
6493	1167	Mainstream	Male	60	Class teacher	Monolingual	No	Yes	5	3	No	110	25	1	30	24		
2462	1784	Mainstream	Male	67	Class teacher	Monolingual	No	Yes	3	4	No	110	36	1	30	27		
6139	1362	Mainstream	Male	61	Class teacher	Monolingual	No	Yes	3	4	No	110	18	1	30	22		
6980	249	Mainstream	Female	69	Class teacher	Monolingual	No	Yes	5	3	No	110	29	1	30	27		
7655	7318	Mainstream	Male	61	Class teacher	Monolingual	Yes	Yes	3	4	No	110	20	1	30	21		
6115	8618	Mainstream	Female	61	Class teacher	Monolingual	No	Yes	3	4	No	110	16	1	30	28		
4088	7238	Mainstream	Male	66	Class teacher	Monolingual	Yes	Yes	4	5	No	110	34	1	30	21		
675	4646	Mainstream	Male	65	Class teacher	Monolingual	No	Yes	4	4	No	110	6	1	30	30		
9881	8213	Mainstream	Male	70	Class teacher	Monolingual	No	Yes	4	4	No	110	38	1	30	29		
5585	8789	Mainstream	Male	61	Class teacher	Monolingual	No	Yes	3	5	No	110	12	1	30	29		
5732	8302	Mainstream	Female	62	Class teacher	Monolingual	Yes	Yes	5	3	No	110	1	1	30	30		
6158	1717	Mainstream	Male	61	Class teacher	Monolingual	No	Yes	4	5	No	110	14	1	30	21		
6993	8649	Mainstream	Female	67	Class teacher	Monolingual	No	Yes	4	5	No	110	34	1	30	27		
7038	2119	Mainstream	Female	68	Class teacher	Monolingual	No	Yes	3	4	No	110	35	1	30	20		
3248	3054	Mainstream	Female	62	Class teacher	Monolingual	No	Yes	5	3	No	110	11	1	30	27		
5403	158	Mainstream	Male	60	Class teacher	Monolingual	Yes	Yes	5	5	No	110	34	1	30	24		
8855	2632	Mainstream	Female	66	Class teacher	Monolingual	Yes	Yes	4	3	No	110	23	1	30	24		
73	9838	Mainstream	Male	63	Class teacher	Monolingual	Yes	Yes	4	4	No	110	3	1	30	28		
1745	9962	Mainstream	Female	60	Class teacher	Monolingual	No	Yes	4	4	No	110	19	1	30	23		
8241	9098	Mainstream	Male	60	Class teacher	Monolingual	Yes	Yes	5	4	No	110	12	1	30	30		
4666	99	Mainstream	Male	70	Class teacher	Monolingual	No	Yes	5	5	No	110	0	1	30	29		
7342	6212	Mainstream	Female	66	Class teacher	Monolingual	Yes	Yes	5	4	No	110	27	1	30	26		
1476	3625	Mainstream	Male	61	Class teacher	Monolingual	No	Yes	4	4	No	110	19	1	30	29		

An example of SCALES anonymised data

For further updates on data storage, see the SCALES website: <http://www.lilac-lab.org/>

Annex 4: SCALES Timeline

SCALES TIMELINE

