Department
for Education

Profiles of need and provision for children with language impairments and autism spectrum disorders in mainstream schools: A prospective study.

Technical Annex: Measures and Analysis

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Technical Annex: Measures and Analyses

This Technical Annex to the Better Communication Research Programme's Prospective study presents a description of the measures used (Appendices 2 – 8) and details of the analyses (Appendix 9).

APPENDIX 2 Details of standardised measures

Oral language

Global language measures

Recalling sentences and word classes subtests from the most recent UK edition of the Clinical Evaluation of Language Fundamentals (CELF-4 UK; Semel, Wiig, & Secord, 2006) were used at screening to confirm oral language impairments in LI-av-NV and LI-low-NV groups. The recalling sentences subtest in which participants repeat orally presented sentences was chosen as a measure of expressive language and because is it considered to be a reliable clinical marker of SLI (e.g., Conti-Ramsden, Botting, & Faragher, 2001). In the word classes subtest, upon hearing three or four words read aloud by the examiner, pupils are asked to select the two words that go together. Pupils are then asked to explain the connections in meaning between the two words they selected. This was chosen to compliment recalling sentences as it measures semantic knowledge and taps receptive as well as expressive language.

At Time 1 participants additionally completed the concepts and following directions (all participants), formulated sentences (all participants) and word structure (pupils aged 5-8 years only) subtests from the CELF-4 UK. In the concepts and following directions subtest, pupils are asked to identify a picture the examiner has named, from several choices, by pointing to it. Pupils are then asked to point to the pictures in the order the examiner has named them. In the formulated sentences subtest, pupils are asked to formulate a sentence in response to an orally presented target word or phrase with a stimulus picture as a reference. In the word structure subtest, pupils are asked to complete an orally presented sentence in reference to a visual illustration. The CELF-4 UK yields the expressive language index, a composite of scores on recalling sentences, formulated sentences and either word structure (pupils aged 5-8 years) or word classes (pupils aged 9-12 years). The CELF-4 UK also provides a receptive language index. However, participants did not complete all relevant subtests. Therefore, we devised a receptive composite (mean scaled scores) from performance on concepts and following directions and word classes subtests. The CELF-4 UK provides norms for individuals aged 5-16 years.

The technical manual for the CELF-4 UK reports Cronbach's alpha (α) and split-half (r) correlations as measures of internal consistency for each subtest: recalling sentences: α=.86-.93, r=.86-.96; word classes expressive: α=.72-.87, r=.71-.88; word classes receptive:

α=.73-.85, r=.68-.91; word classes overall: α=.85-.92, r=.83-.94; word structure subtest α=.78 - .84, r=. 80-.89; formulated sentences subtest α=.75 – 86, r= .75-.89; concepts and following directions α=. 73 – 92, r= .76-.93. The range of α and r corresponds to different values for different age groups. Test-retest reliability is reported as good for recalling sentences and formulating sentences (r=.86 for both) and good or adequate for word classes (expressive r=.81, receptive r=.84, overall r=.79), concepts and following directions (r= .83) and word structure (r= .71). In terms of validity, correlations between CELF-4 UK expressive language index, recalling sentences and word classes expressive are r=.84 and r=.76 respectively. Correlations between the CELF-4 UK expressive language index for word structure, formulated sentence and concepts and following directions were r= .86, r= .83 and r=.67 respectively. Correlation between CELF-4 receptive language index and word classes receptive is r=.82 and for concepts and following directions r=.86.

The most recent UK edition of the Wechsler Individual Achievement Test (WIAT-II UK; Wechsler, 2005) provided expressive and receptive language measures at Time 2. The oral expression composite was used as a measure of expressive language and is based on scores on the following subtests; visual passage retell, giving directions and either sentence repetition (pupils aged 4-8 years) or word fluency (pupils aged 9 years and older). The visual passage retell subtest involves the examiner reading a short story from the stimulus booklet, pupils are then asked to create stories based on visually presented, cartoon-like passages. For the giving directions subtest, pupils are required to give verbal directions both with and without visual cueing. The sentence repetition subtest is administered to pupils ages 4-8 years only and involves pupils being asked to repeat short sentences. There are two word fluency Tasks, A and B. In both tasks, pupils are required to generate nouns or verbs in response to a verbal prompt.

The listening comprehension composite was used as a measure of receptive language and is based on scores on receptive vocabulary, sentence comprehension and expressive vocabulary subtests. The receptive vocabulary subtest involves the examiner showing the pupil several pictures and then saying a word that matches only one of the pictures. The pupil is then required to point to the correct picture that matches the word. Similarly, the sentence comprehension subtest involves the examiner reading a sentence and then showing the pupil four pictures. One of the four pictures will match the sentence exactly; the other three may be close but they will not be an exact match. Again, the pupil is required to point to the picture that matches the sentence. The expressive vocabulary subtest involves

the examiner showing the pupil a picture and saying several words to describe it. The pupil is then asked to say one word that means the same thing.

The WIAT-II UK provides norms for individuals aged 4-16 years. The WIAT-II UK possesses moderately high to high inter-item reliability (r=.80 - .98 depending on age group), with an overall composite reliability coefficient of r=.98. In terms of validity, correlations with WIAT-II and the WIAT; (WIAT; Wechsler, 1992) were moderate to low for the subtest where content changed significantly from the first edition (r = .29 for oral expression).

The Children's Communication Checklist (CCC-2; Bishop, 2003a) was completed by parents at Time 1. In this task, parents are required to indicate the frequency with which particular aspects of language and communication are shown by their child. Items from the CCC-2 form subtests that index structural language (speech, syntax, semantics and coherence) and pragmatic language (inappropriate initiation, stereotyped language, use of context, nonverbal communication, social relations and interests). The CCC-2 also yields two composite scores the General Communication Composite (GCC) and the Social Interaction Deviance Composite (SIDC). The GCC can be used to identify children likely to have clinically significant communication problems; children who score below 54, 45 and 40 are considered to be in the bottom 10%, 5% and 3% of children respectively. Similarly, the SIDC can help to distinguish between a profile typical of SLI (SIDC>8) and the pragmatic language impairment typical of ASD (SIDC<0). The CCC-2 provides norms for individuals aged 4-16 years. High internal consistency is reported for the CCC-2 (Cronbach's alpha values of all scales are at least α=.65). At point of publication no reported studies of validation have been identified.

Subcomponents of the language system

As a measure of phonological processing, pupils completed the rhyme subtest from the Phonological Assessment Battery (PhAB; Frederickson, Frith, & Reason, 1997). In this subtest pupils hear three words and have to identify the two words that rhyme. The PhAB provides norms for individuals aged 6-14 years. The PhAB technical manual reports Cronbach's alpha (α) as a measure of internal reliability, with values for the rhyme subtest ranging from α=.89 - .95 across four age groups. All correlation coefficients between the PhAB and Neale Analysis of Reading Ability are significant at the one per cent level ($p<0.01$) and positive. The majority of correlations between the PhAB and the BAS-II are positive and significant at the one per cent level ($p<0.01$).

Pupils completed the third edition of the British Picture Vocabulary Scale (BPVS-III; Dunn, Dunn, & NFER, 2009) at Time 1 and Time 2. In this receptive vocabulary task, participants hear a word and are required to indicate what it means by selecting a picture from four alternatives. The BPVS-III provides norms for individuals aged 3-16 years. . BPVS reliability 0.91, validity: W.I.S.C. -0.76, Schonell 0.80.

The vocabulary subtest from the Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999) was completed at Time 2. To complete this task pupils provide verbal definitions for words. The WASI provides norms for individuals aged 6 years to adult. The WASI manual reports internal reliability (r= .86 - .93 depending on age group). The WASI vocabulary correlates well with the vocabulary subtest on the WISC-III (r= .74) indicating a high level of validity.

The Test for Reception of Grammar (TROG) provided a measure of receptive grammar. In the TROG, individuals hear a series of sentences that increase in grammatical complexity and indicate comprehension by selecting a picture from four alternatives. At Time 1 pupils completed the electronic version of this task (TROG-E; Bishop, 2005) in which a computer is used to present items and record responses. At Time 2, a license to use this electronic version could not be obtained from the publisher because of a software fault. Therefore, the equivalent paper version was used instead (TROG-2; Bishop, 2003b). Standardised scores on the TROG-E and TROG-2 are based on the same norms and are therefore directly comparable. The TROG provides norms for individuals aged 4 years to adult. High internal consistency is reported for the TROG (r= .88) indicating a good level of reliability. A correlation with the linguistic concepts subtest of CELF-Preschool (Wiig, Secord & Semel, 2000; r=.58) and concepts and directions from CELF-3 (Semel, Wiig & Secord, 2000; r=.53) is reported, providing evidence of validity for the TROG.

Cognitive tasks

Non-verbal ability

The matrices subtest from the second edition of the British Ability Scales (BAS-II; Elliott, Smith, & McCulloch, 1997) was administered during the screening phase and at Time 2, and the matrix reasoning subtest from the WASI (Wechsler, 1999) was administered at Time 1. In both tasks, participants are presented with an incomplete pattern and are required to select the picture that will complete the pattern. The BAS-II provides norms for individuals aged 5 years to adult and the WASI for individuals aged 6 years to adult. The BAS-II

technical manual reports modified split-half correlation coefficients as a measure of internal reliability (r=.79-.92, depending on the age group). Test-retest reliability is also reported (r =.64). In terms of validity, a correlation with the performance IQ scale from the Wechsler Intelligence Scale for Children (WISC; Wechsler, 1991) is reported (r=.47). The WASI manual also reports reliability coefficients as a measure of internal reliability (r= .86 - .96 depending on age group).

Memory

Four subscales from the Automated Working Memory Assessment (AWMA; Alloway, 2007) were administered at Time 1 to assess both short-term memory (storage) and working memory (storage and processing) in visuo-spatial and verbal domains. In the dot matrix subscale (visuo-spatial short-term memory), pupils are shown the position of a red dot in a series of four by four matrices and attempt to recall this position by tapping the squares on the computer screen. In the spatial recall subscale (visuo-spatial working memory), pupils view pairs of two shapes and identify whether they are the same or not. One shape appears with a red dot beside it. After a series of pairs, they attempt to recall the location of the red dot on each shape in the correct order. Digit recall (verbal short-term memory) requires pupils to recall lists of digits in sequence and backwards digit recall (verbal working memory) requires pupils to recall lists of digits in reverse order. The AWMA provides norms for individuals aged 4 years to adult. Test reliability correlation coefficients ranged between r= .69 - .90. In total 75% of children with poor working memory based on identification by the AWMA also obtained standard scores of 85 or less on the Wechsler Intelligence Scale for Children (WISC-IV; Wechsler, 2005).

Literacy

Reading

The primary and secondary versions of the York Assessment of Reading for Comprehension (YARC; Snowling et al., 2009; Stothard, Hulme, Clarke, Barnby, & Snowling, 2010) provided measures of reading comprehension at Time 1 (Form A) and Time 2 (Form B). Pupils read one passage, either aloud (primary school pupils) or silently (secondary school pupils) and answered a series of comprehension questions. Pupils completing the secondary version of the YARC, read non-fiction (rather than fiction) passages. In the first edition of the YARC, published norms were based on children reading one or two passages. Given this, and our large and time-consuming assessment battery, we chose to administer one passage only. However, in the second edition norms were available for two passages but not one passage.

At our request, the authors of this test provided us with up to date norms for use with one passage on both the primary (5-11 years) and secondary (11-16 years) versions of the YARC.

The Single Word Reading Test (SWRT) provided a measure of word reading accuracy (pupils read a list of words) at Time 1 and Time 2. This assessment is published with norms both independently (Foster, 2007) and within the YARC (Snowling et al., 2009; Stothard et al., 2010). Validity: Five case studies are available illustrating the use of the SWRT across various ages and abilities. Reliability: Cronbach's alpha = .98 for version 1 and .98 for version 2. Correlations between the two versions of the SWRT is .98 which indicates that they are measuring the same construct and are almost equivalent in terms of level of difficult.

At Time 1, the Test of Word Reading Efficiency (TOWRE; Torgesen, Wagner, & Rashotte, 1999) was also administered. In this task the number of words and nonwords read accurately in 45 seconds provides indices of word and nonword reading efficiency respectively. The TOWRE provides norms for individuals aged 6 years to adult. The TOWRE technical manual indicates a good level of reliability (average subtest coefficients of $r =. 93$ and $r =. 94$ for sight word efficiency and phonemic decoding efficiency respectively) using an alternative form of reliability (Anastasi and Urbina,1997).

Writing

The BAS-II (Elliott et al., 1997) spelling subtest, in which pupils spelled a series of words, was completed by pupils at Time 1. The BAS-II provides norms for individuals aged 5 years to adult. The BAS-II technical manual reports modified split-half correlation coefficients (r) as a measure of internal reliability (r=.84- .96 depending on age group). Test-retest reliability is also reported (r=.64). In terms of validity, a correlation with the spelling subtest on the Wechsler Objective Reading Dimensions (WORD; Wechsler, 1993; r= .63) indicates a good level of validity for the BAS-II. At Time 2, pupils completed the alphabet writing task within the Detailed Assessment of Speed of Writing (DASH; Barnett, Henderson, Scheib and Schulz, 2007) in which they were asked to repeatedly write the alphabet in order, as many times as they could in 60 seconds. The DASH provides norms for individuals aged 9-16 years. Therefore, standardised scores were not available for participants under 9 years. The DASH technical manual reports Cronbach's alpha coefficients (α=. 83 - .89 depending on age), indicating good internal consistency. A significant correlation between the 'words per minute' on the free writing task described by Allcock (2001) and the DASH free writing task (r= .63, *p*<.05) indicates a good level of validity.

Autism symptomatology

The Social Responsiveness Scale (SRS; Constantino & Gruber, 2005) was completed by teachers at screening and Time 2 and by parents at Time 1. Respondents are presented with a series of statements relating to autism symptomatology and indicate the frequency of their occurrence. The SRS generates a total score and scores on five subscales; social awareness, social cognition, social communication, social motivation and autism mannerisms. The SRS provides norms for individuals aged 4 -18 years. A high level of internal consistency was reported using Cronbach's alpha (α) values for teachers (male α=.97 and female α=.96 and for parent (fathers α= .94 and mothers α=.93). Correlations between the teacher SRS and the subscales from the ADI-R show high levels of validity (ADI-R social deficits r=.67, ADI-R verbal communication r= .65, ADI-R nonverbal communication r= .52 and ADI-R stereotypical behaviour/restricted interests r= .70). The correlation between teacher report and parent report was also significant (r=.75 and .82 for fathers and mothers respectively).

The Social Communication Questionnaire (SCQ; Rutter, Bailey, & Lord, 2003) was completed by parents at Time 1. The subtests within the SCQ are as follows; reciprocal social interaction; communication and restricted, repetitive and stereotyped behaviour. The SCQ is available in two forms, *Lifetime* and *Current* and in this case, the *Lifetime* form was completed, which focused on the child's entire developmental history. This questionnaire asks about autism symptomatology and is based on the Autism Diagnostic Interview – Revised (Lord, Rutter, & Le Couteur, 1994). The SCQ provides norms for individuals aged 4 years to adult. No reliability data are reported. When considering validity in the manual, the authors refer to the investigation of ADI-R and SCQ scores in the Bishop and Norbury (2002) sample of children with developmental language disorders. The inter-correlations found between the ADI-R and the SCQ are as follows: for the reciprocal social interaction domain r= .92, for the communication domain r= .73, and for the restricted, repetitive and stereotyped patterns of behaviour domain r=.89, indicating a high level of validity for the SCQ.

Behaviour and well-being

The KIDSCREEN is a self-report questionnaire in which pupils were asked to comment on their quality of life. We used the version with 52 questions (KISDREEN-52), which comprises subscales on physical well-being, psychological well-being, moods and emotions, self-perception, autonomy, parent relation and home life, financial resources, social support and

peers, school environment and school acceptance (bullying). The KIDSCREEN provides norms for individuals aged 8-18 years. A high level of internal consistency was reported (α= .77 - .89). KIDSCREEN dimensions were correlated with the Youth Quality of Life Instrument-Surveillance Version (YQOL-S) perceptual scale indicating. Pearson correlation coefficients for all subtests within the KIDSCREEN-52 (physical well-being r= . 41, psychological well-being r= .61, moods and emotions r= .56, self-perception r=.51, autonomy r=.40, parent relation and home life r=.60, financial resources r=.37, social support and peers r=.37, school environment r=.47 and social acceptance r=.24) indicate strong evidence of validity for the KIDSCREEN.

The Strengths and Difficulties Questionnaire (Goodman, 1997) was completed by teachers at Time 1 and Time 2 as a measure of behaviour. Respondents are asked to specify the verity of a series of statements and responses yield scores on the following subscales; emotional symptoms, conduct problems, hyperactivity, peer problems, and prosocial behaviour. The SDQ provides norms for individuals aged 3-16 years. A high level of internal consistency was reported (mean α= .73 for the different SDQ scores and informants). Total difficulties and total impact scores were all satisfactory (α=.80 or above). Internal consistency of self-report peer problems score was noticeably low (α=.41) (Goodman, 2001).

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APPENDIX 3 Observation Schedule

Instructions for observer

1. Before the start of the literacy hour, ask the teacher the questions from the attached teacher questionnaire. If it is not possible to have this discussion before the beginning of the lesson, please try to meet the teacher after the end of the literacy hour.

2. If the teacher refers you to the students' Learning Support Assistant (LSA) for some of the questions, please make sure that you ask the relevant questions to the LSA after the end of the session.

3. Leave 10 minutes between the start of the literacy lesson and the start of the observation

4. During the 10 minute period between the start of the literacy hour and the start of the observation, start completing the information on the 1st page of the observation schedule. Please do not leave any boxes incomplete. If the information is not available put 999.

5. In the section **use of visual aids**, If instructions/vocabulary appear on a board (PowerPoint, interactive, or written online) and the teacher indicates it when talking then please code yes.

6. After the end of the 20 minute observation period, go back and check the 1st page of the observation schedule, in case you need to add some information.

7. Use a stopwatch from the start of the observation period.

8. Each observation period is two minutes. Please try to code as close to the end of the 1st minute of time period as possible (i.e. minute 1, minute 3, minute 5 and so on).

9. First code the **Engagement** Code and then the rest of the codes.

10. For the **Autism Features** please code for whole two minute period and only code each type once.

Notes on categories and codes

Location

1. In the classroom: The target student is in the classroom as part of the regular lesson, in the same location as the rest of his/her classmates

2. Withdrawal in the classroom:
    a. Working with an adult in a corner of the room: The target student is working with a Learning Support Assistant (LSA) or Teaching Assistant (TA) in a corner of the classroom.
    b. A physical barrier that separates the child from the rest of the classroom

3. In class with LSA: The target student is seating on his/her regular place in the classroom and he/she is working with an LSA/TA, who is next to him/her

4. Withdrawal from class: The target student is not his/her regular classroom but in a separate location in school.

Working with

1. Whole class: The target child is working with the whole classroom.
2. Large group: The target child is working with a large group (six or more students).
3. Small group: The target child is working with a small group (less than six students).
4. Pair: The target child is working in pairs with another student.
5. Alone: The target child is working alone on a task that requires individual work.
6. LSA: The target pupil is working with a LSA or TA
7. Other staff: The target student is working with any other staff, except for his/her class teacher, LSA or TA.

Task differentiation

1. Same task as class: the target child is involved in the same activity as the rest of the classroom

2. Task differentiation for pupil:
    a. Individually: the target child is involved in a task that has been specifically differentiated for her/him.
    b. In group: the target child is involved in a task that has been specifically differentiated for a specific group of students.

3. Different literacy task: the target child is involved in a different literacy task than the rest of the classroom. The task should be specified or named by the researcher, if possible.

4. Different task: the target child is involved in a different task than the rest of the classroom. The task should be specified or named by the researcher, if possible.

5. Specialised intervention: the target child is involved in a specialist intervention. The task should be specified or named by the researcher, if possible
    a. Language: It should be specified whether the specialist intervention concerns language or not
    b. Literacy: It should be specified whether the specialist intervention concerns literacy or not.

Engagement

1. On task, specify:
    a. Passive.eg., listening, responds if asked: the target child simply listens to the adult during the interval and interacts only if asked

b. Active

    i. Participation-volunteers answers, makes suggestions: the target child is actively involved in the lesson by volunteering answers and making suggestions

    ii. Completing own task e.g., writing, reading etc: the target child is actively involved by completing his or her own task alongside the rest of the classroom

2. Off task, specify:

    a. Passive: The behaviour of the target pupil is unrelated to the situation by passively not attending

    b. Active

        i. Chatting with others: The target child is actively not attending by chatting with others

        ii. Looking away, at others: The target child is actively not attending by looking away or at others

        iii. Disruptive to lesson (provokes response from teacher/other professional): The target child is actively not attending by being in different ways disruptive to the lesson.

        iv. 'Playing with' items, materials, equipment: The target child is actively not attending by playing with items, materials or equipment

        v. Doing another task, not intended by teacher: The target child is actively not attending by doing another task.

Autism features

1. Repetitive or stereotypical behaviour, specify:

    a. Unusual sensory interest: The student exhibits unusual sensory interest for specific materials, surfaces etc

    b. Hand and finger and other complex mannerisms e.g. repetitive, clapping.

    c. Self-injurious behaviour. The target student exhibits behaviours that may result in self-injury

    d. Circumscribed interests or preoccupations

    e. Compulsions or rituals e.g., lining things up

2. Distress/ negative emotion, specify:

    a. Agitation

    b. Tantrums, aggression

    c. Anxiety (wariness, self-consciousness, worry, upset, concern).

Teacher questionnaire to accompany observation schedule

Participant ID:	Year Group:	Group:	School:

<u>Teacher discussion and questionnaire to accompany observation schedule – to be conducted before observation</u>

We would like to observe how the child engages with a literacy/English lesson so please carry on as normal and as if we weren't there. We will start our observation after you have introduced the lesson. However, there are a few points that we would like to ask you about beforehand.

1. Where will xxx be during the lesson?   with class / other location

2. What will the **objectives** of the literacy hour be today? Please tick **all** of the following that apply:

Speaking, listening and responding	
Group discussion and interaction	
Drama and role play	
Building language	
Phonics and word-level reading	
Reading comprehension: Understanding and interpreting texts	
Reading comprehension: Engaging with and responding to texts	
Spelling and handwriting	
Composition: Creating and shaping texts	
Composition: Text structure and organisation (global structure)	
Composition: Sentence Structure and punctuation (local structure)	

Comments:

If you have any additional comments then please include them here

3. Will the objectives for (child's name) be the same as above? Yes / No

If no, please tick **all** of the following that apply:

Speaking, listening and responding	
Group discussion and interaction	
Drama and role play	
Building language	
Phonics and word-level reading	
Reading comprehension: Understanding and interpreting texts	
Reading comprehension: Engaging with and responding to texts	
Spelling and handwriting	
Composition: Creating and shaping texts	
Composition: Text structure and organisation (global structure)	
Composition: Sentence Structure and punctuation (local structure)	

If yes, will the focus be adapted or broken down? Yes / No

Comments:

If you have any additional comments then please include them here

4. How will (child's name) be supported during literacy hour to achieve these objectives? (Ask for specific examples related to reading, spelling and writing).

5. Sometimes children sit in ability groups in classrooms. Will this happen in the class we are going to observe? Yes / No

Will (child's name) be sitting in any of the following groupings?

High ability	
High-middle ability	
Middle ability	
Middle-low ability	
Low ability	
Mixed ability	
N/A	

6. Has the school been offering you any training related to speech, language and communication needs?

Coding frame for observer

Coding frame				
Location	**Working with**	**Task differentiation**	**Engagement**	**Autism features**
1. In class	**1. Whole class**	**1. Same task as class**	**1. On task, specify:**	**1. Repetitive or stereotypical behaviour, specify:**
	2. Large group ≥6	**2. Task differentiation for pupil, specify:**	a. Passive e.g., listening, responds if asked	
2. Withdrawal in class **i.** working with an adult in a corner of the room **ii.** a physical barrier that separates the child from the rest of the classroom	**3. Small group <6**	a. Individually b. In group	b. Active i. Participation – volunteers answers, makes suggestions ii. Completing own task e.g., writing, reading etc.	a. Unusual sensory interest b. Hand and finger and other complex mannerisms e.g., repetitive clapping. c. Self-injurious behaviour.
	4. Pair	**3. Different literacy task**	**2. Off task, specify:**	
3. In class with LSA	**5. Alone**	**4. Different task**	a. Passive b. Active i. Chatting with others ii. Looking away, at others	d. Circumscribed interests or preoccupations. e. Compulsions or rituals e.g., lining things up.
4. Withdrawal from class	**6. LSA** **7. Other staff** a. School staff b. Other professionals	**5. Specialised intervention** a. Language b. Literacy	iii. Disruptive to lesson (provokes response from teacher/other professional) iv. 'playing with' items, materials, equipment v. doing another task, not intended by teacher	**2. Distress/negative emotion, specify:** a. Agitation b. Tantrums, aggression c. Anxiety (wariness, self-consciousness, worry, upset, concern)

Observation schedule form for completion by observer

Participant ID:	Year Group:	Group:		School:	
Number of pupils in class:		Date:		Time start lesson:	Time start observation:
Lesson content: (more than one can be identified)	1. Reading accuracy 2. Spelling 3. Writing 4. Reading comprehension 5. Listening (e.g. stories, poetry plays) 6. Speaking (e.g. answering/asking questions, discussion) 7. Other (please specify) If discussing a text please specify type: e.g. narrative, non-fiction, poetry, newspapers/news reports				
Objectives specified to pupils (e.g., activity):					
Sitting arrangements in the classroom: 1.Front 2. Back					

Use of visual aids:

Writing instructions on board as well as saying them 1. YES 2. NO		Writing key vocabulary on the board 1. YES 2. NO		Using diagrams/pictures to support what is said (e.g., mind maps, visual timetables, PowerPoint, videos) 1. YES 2. NO	
	Code as close to 1st minute of time period as possible			**Code for whole period and code each type once**	
Time Frame	**Location**	**Working with**	**Task**	**Engagement**	**Autism features**	**Comments**
Minute 1 (0-2 min.)						
Minute 3 (2-4 min.)						
Minute 5 (4-6 min.)						
Minute 7 (6-8 min.)						
Minute 9 (8-10 min.)						
Minute 11 (10-12 min.)						
Minute 13 (12-14 min.)						
Minute 15						

(14-16 min.)					
Minute 17 (16-18 min.)					
Minute 19 (18-20 min.)					

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Teacher Questionnaire 2010

Your name and relationship to child (e.g., class teacher):		
Child's name:		**Unique pupil ID number:**
Date of birth:	**Today's date:**	**Age:**

If you are unsure about any of the questions, please feel free to pass this on to someone else.

Current National Curriculum Levels

Please complete the following table with details of the child's most recent National Curriculum Levels.

Subject	Level (e.g., 3a)	Date
English		
Overall level		
Speaking and listening		
Reading		
Writing		
Maths		
Overall level		
Using and applying mathematics		
Number and algebra		
Shape, space and measures		
Statistics		

Communication

The questions in this section are taken from the Children's Communication Checklist, a brief screening instrument designed to help us identify children with potential speech, language and communication needs. It is helpful to find out how the child behaves in everyday situations. Please indicate how frequently the child makes the following errors by circling the appropriate number to the right of the statement (please do not leave any items blank).

Note that for items 1-6, a higher number suggests greater difficulty and for items 7-13 a higher number suggests greater skill.

Key:

0   rarely or never (less than once a week)

1   occasionally (once a week)

2   regularly (once or twice a day)

3   frequently or always (several times a day)

	Rarely /never	Occasionall	Regularly	Frequently /always
1. Forgets words s/he knows, e.g. instead of "rhinoceros" may say, 'that animal with a horn'	0	1	2	3
2. Uses terms like "he" or "it" without making it clear what s/he is talking about. E.g. when talking about a film may say 'he was really great' without explaining who 'he' is.	0	1	2	3
3. Misses the point of jokes and puns (though may be amused by humour such as slapstick)	0	1	2	3
4. Leaves off past-tense –ed or other word endings	0	1	2	3
5. Takes in just one or two words of a sentence, so misinterprets what has been said. E.g., if someone says 'I want to go skating next week', may think that they have been or want to go now	0	1	2	3
6. Gets the sequence of events muddled up when trying to tell a story or describe an event. E.g. if talking about a film may describe the end before the beginning	0	1	2	3
7. Uses appropriate language to talk about future events (e.g. plans for tomorrow or plans for going on holiday.	0	1	2	3
8. You can have an enjoyable, interesting conversation with him/her	0	1	2	3
9. Can produce long and complicated sentences such as: "When we went to the park I had a go on the swings"; "I saw a girl holding a spotty umbrella"	0	1	2	3
10.Uses words that refer to whole classes of objects, rather than a specific item; e.g. refers to chairs, tables and drawers as "furniture" or apples, bananas and pears as "fruit"	0	1	2	3
11.Speaks clearly, producing all speech sounds in a word accurately	0	1	2	3
12.Explains a past event (e.g. what s/he did at school or what happened at a party) clearly	0	1	2	3
13. When answering a question, provides just the right amount of information, without being overly precise or too vague	0	1	2	3

Teaching Strategies

Is it necessary to differentiate the curriculum for him/her (please circle)? Y / N

If yes, is this for: The whole curriculum: Y / N

        Literacy :   Y / N   Numeracy: Y / N

Pupils require different strategies to meet their individual learning needs.
Please indicate the extent to which the following methods are used to
support learning or differentiate the curriculum for the child:

Strategy	Never used	Used rarely	Used sometimes	Used often	Used all the time	Not appropriate
Allow extra practice with tasks and experience with materials						
Use extended or additional examples						
Monitor preparedness for next step						
Provide task-related feedback						
Provide opportunities for transfer						
Use a checklist of steps to help student get organised for a specific task						
Space short work periods with breaks						
Setting an easier level of work						
Inform student with several reminders, several minutes apart, before changing from one activity to the next						
Provide written and verbal direction with visuals if necessary						
Allow for student to use computer, tape recorder and/or calculator routinely in the classroom						
Limit the number of concepts presented at one time						
Using special programmes If used, please specify:						
Other - please give examples of strategies that have worked best in your classroom						

Support

Please use the table below to indicate the quantity and type of support that the child receives in school.

If the exact number of hours is not known then please provide an estimate.

	In class		Withdrawal in a small group			Withdrawal individually		Indirect consultancy work for the student
	Support Given? (please circle)	No. of hours per week	Support Given? (please circle)	No. of hours per week	No. of children in group	Support Given? (please circle)	No. of hours per week	
Learning Support Assistant / Teaching Assistant	Y / N		Y / N			Y / N		
SENCo	Y / N		Y / N			Y / N		
Speech and Language Therapist	Y / N		Y / N			Y / N		
Other professionals (e.g., Educational Psychologist, Occupational Therapist) Please specify:	Y / N		Y / N			Y / N		

Thank you for completing this questionnaire.

Please return the completed questionnaire to us either in person or using the FREEPOST envelope attached.

Dr Jessie Ricketts

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Phase 4 Teacher Questionnaire 2011

Your name and relationship to child (e.g., class teacher):		
Child's name:		
Date of birth:	Today's date:	Age:

The following questionnaire has three short sections. Please respond to the best of your knowledge to each question.

> ## Section 1: Curriculum Differentiation

1. Is the curriculum differentiated for him/ her (please circle)?
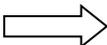
   YES ☐ ⟹ **Go to question 2**
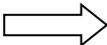
   NO ☐ ⟹ **Go to Section 2**

2. If yes:

   a. Is the curriculum differentiated for literacy/ English?   **Yes /No / I don't know**

   b. Is the curriculum differentiated for numeracy/Maths?   **Yes /No / I don't know**

Section 2: Teaching strategies

For each of the following strategies, please indicate to what extent you use them to support pupil's learning:

Strategy	Not appropriate	Never used	Used rarely	Used sometimes	Used often	Used all the time
Allow extra practice with tasks and experience with materials						
Use extended or additional examples						
Monitor preparedness for next step						
Provide task-related feedback						
Provide opportunities for transfer						
Use a checklist of steps to help student get organised for a specific task						
Space short work periods with breaks						
Setting an easier level of work						
Inform student with several						

reminders, several minutes apart, before changing from one activity to the next					
Provide written and verbal direction with visuals if possible					
Allow for student to use computer, tape recorder and/or calculator routinely in the classroom					
Limit the number of concepts presented at one time					
Using special programmes If used, please specify:					
Other - please give examples of strategies that have worked best in your classroom					

Section 3: Support

Please use the table below to indicate the quantity and type of support that the child receives in school.

	In class	Withdrawal in a small group		Withdrawal individually
	Support Given? (please circle)	Support Given? (please circle)	If **yes**: Average number of children in group	Support Given? (please circle)
Learning Support Assistant / Teaching Assistant	Y / N/ Don't know	Y / N/ Don't know		Y / N/ Don't know
SENCo	Y / N/ Don't know	Y / N/ Don't know		Y / N/ Don't know
Speech and Language Therapist	Y / N/ Don't know	Y / N/ Don't know		Y / N/ Don't know

Thank you for completing this questionnaire.

Please return the completed questionnaire to us either in person or using the FREEPOST envelope attached.

If you have any questions, please do not hesitate to contact us:

Dr Olympia Palikara	**Nita Patel**
Telephone: 02076126826	Telephone: 07904211381
Email: o.palikara@ioe.ac.uk	Email: n.patel@ioe.ac.uk

APPENDIX 6 Better Communication Research Programme – Prospective Study

Provision for pupils - Time 1

Child's name …………………….…   School……….….   Informant…………   Date

1.1 Type of school

Mainstream

Special school

Mainstream with specialist resource

1.2 Description of general provision

………

2.   Specialist provision made
within school *for this child*

Average hours *per week*

2.1 From TA 1 – 1

2.2 From TA – groupwork

2.3 In resource base

Specify staff………………………………………

2.4 From SENCO 1-1

2.5 From SENCO groupwork

From outside professionals *for this child*   Average hours *per term*

2.6   Visiting speech and language therapist
        a) 1-1

        b) groupwork

2.7   Speech and language therapist in clinic

2.8   Educational psychologist

2.9   Community paediatrician (schools doctor)

2.10 Education Welfare Officer

2.11 School nurse

3.   Administrative and other support *for this child*   Average hours *per term*

3.1   SENCO time for reviews, meeting parents,
        report writing etc.

3.2   Teacher time for reviews, meeting parents,
        report writing etc.

3.3   Head teacher (or senior leader) time for
        reviews, meeting parents, report writing etc.

4.   Special resources

This section asks about special resources purchased or hired by the school outside normal school provision for pupils, e.g. specialist programme, communication aids. If a resource is shared with other children please estimate the child's proportion of use (e.g. if shared with one child: 50%, with 5 children: 20%, even if not used continuously.

4.1   Special programme: name…………………………………………
       Approx cost   …………………………………………………..
       % of its use this year for the target child …………………….

 4.2   Special aids: name…………………………………………..
       Approx cost   …………………………………………………..
       % of its use this year for the target child …………………….

APPENDIX 7 Better Communication Research Programme – Prospective Study

Provision for pupils – Time 2

Child's name ………………………… School…………… Informant………… Date ………..

1.1 Type of school

Mainstream

Mainstream with specialist resource

Special school

1.2 Description of general provision

……………………………………………………………………………………………………
……………………………………………………………………………………………………
…………

Please specify the average hours of support. If there is no support please write 0 in the box. If you don't know then please tick the appropriate box.

2.   Specialist provision made within school for this child

	Average hours per week	**Don't know**
2.1 From TA 1 – 1	☐	☐
2.2 From TA – groupwork	☐	☐
2.3 In resource base Specify staff…………	☐	☐
2.4 From SENCO 1-1	☐	☐
2.5 From SENCO groupwork.	☐	☐

From outside professionals for this child

2.6 Visiting speech and language therapist

	Average hours per week	**Don't know**
a. 1-1	☐	☐
b. Groupwork	☐	☐

	Average hours per term	**Don't know**
2.7 Speech and language therapist in clinic	☐	☐
2.8 Educational psychologist	☐	☐

2.9 Community paediatrician (schools doctor)

2.10 Education Welfare Officer

2.11 School nurse

3. **Administrative and other support for this child**

	Average hours per term	**Don't know**
3.1 SENCO time for reviews, meeting parents, report writing etc.	☐	☐
3.2 Teacher time for reviews, meeting parents,. report writing etc.	☐	☐
3.3 Head teacher (or senior leader) time for reviews, meeting parents, report writing etc.	☐	☐

4. **Special resources**

This section asks about special resources purchased or hired by the school outside normal school provision for pupils, e.g. specialist programme, communication aids. If a resource is shared with other children please estimate the child's proportion of use (e.g. if shared with one child: 50%, with 5 children: 20%, even if not used continuously.

4.1   Special programme: name…………………………………………
       Approx cost   …………………………………………………..
       % of its use this year for the target child …………………….

 4.2   Special aids: name…………………………………………….
       Approx cost   …………………………………………………..
       % of its use this year for the target child …………………….

APPENDIX 8 Parent interview schedule

Child's Name:

Parent Interviewed:

Date of the interview:

Telephone number:

Confirm DOB:

I am contacting you about the Better Communication Research programme. This project will help us to understand teaching and learning for children with a range of speech, language and communication difficulties. As you may remember you recently gave consent for us to see XXX at his/her school.

Thank you for agreeing to speak to me and for your support of this project. Your views are extremely valuable to us. Everything that you say will be treated as confidential. Nothing that you say will ever be reported individually about you, XXX or your family. No information will be shared with XXX's school. All results from the study are anonymised.

If you feel you do not wish to discuss any of the items, please tell me and we will move onto the next one.

Strengths and interests:

1. What do you think are XXXs main strengths?

After recording response, go through following list to prompt e.g., Is athletic ability a strength? Ask for examples for each strength.

Quality	YES	NO	Don't know	Provide examples
Athletic ability				
Computer use				
Performing arts ability (Music, theatre, dance)				
Artistic ability				
Creative writing				
Leadership ability				
Being well-organised				
Being sensitive to other's feelings				
Having sense of humour				
Other				

Identification of SEN

2. Do you think that your child has any special educational needs (SEN)?

3. What is his/her main area of SEN?

4. How old was your child when you first started having concerns, or when the SEN was brought to your attention (Make a note of who noticed this first)?

5. Who did you first discuss your child's SEN with? What action, if any, followed from this?

6. Did your child receive any additional support from professionals before school?

Yes	No	Don't know

6a. If yes, from whom and what kind of support did he/she receive at that stage?

6b. If yes, how much support did he/she receive and for how long?

6c. How satisfied were you with the support that your child received?

1. Very satisfied	2. Satisfied	3. Dissatisfied	4. Very dissatisfied

6c1. Why (if satisfied or not satisfied)?

Now I would like to ask you some questions about XXX's current schooling

7. How would you describe XXXs educational progress at school over the last year?

1. Very good	2. Quite good	3. Ok	4. Not very good	5. Not good at all	6. Don't know

7a. Why do you think this? (Can you give any examples of how s/he is doing in reading (English)/ maths/ other subjects)?

8. Overall, how well would you say XXX gets on with other children at school?

1. Very well	2. Quite well	3. Ok	4. Not well	5. Not well at all	6. Don't know

8a. Why do you think this? Can you give any examples of how s/he is doing?

8b. If problems (not well/not well at all), why? Can you give any examples of problems?

9. Overall, how well would you say XXX gets on with his/her teachers at school?

1. Very well	2. Quite well	3. Ok	4. Not well	5. Not well at all	6. Don't know

9a. Why do you think this? (Can you give any examples of how s/he is doing)?

9b. If problems (not well/not well at all), why?

10. Do you feel that the school is good at meeting XXXs special educational needs, for example in relation to his/her learning needs?

Yes	Sometimes	No	Don't know

10a. Why do you think this? Can you give any examples?

11. Do you feel that the school is good at meeting XXXs social and emotional needs?

Yes	Sometimes	No	Don't know

11a. Why do you think this? Can you give any examples?

12. Has XXX received any additional support in school this academic year?

Yes	No	Don't know

12a. If yes, what support has s/he received?

12b. If yes, how much and how frequent is this support?

12c. Were you?

1. Very satisfied	2. Satisfied	3. Dissatisfied	4. Very dissatisfied

12c1. Why do you think this? Can you give any examples?

13. Does XXX currently receive help in school from any other special needs services/professionals (e.g., SLTs)?

Yes	No	Don't know

13a. If yes, what support does s/he get? If support is received, ask about time/number of sessions

	Yes/No/DK	Time/sessions
Speech and language therapy		
Support from educational psychologist		
Occupational therapy/life skills therapy		
Other (please specify)		

14. Can I check with you whether XXX has a statement of special educational needs? If yes, is this support specified on his/her statement? Has it been amended by an annual review since the statement was first written?

14a. How frequent is the support that is specified in the statement now?

14b. How do you feel about this level of support? (Probe if different from statement/ changed by annual review)

15. Do you feel that the special educational services that XXX receives are?

1. Highly tailored to XXXs needs	
2. Quite tailored	
3. Not very tailored	
4. Not at all tailored	
5. Don't know	

15a. Why do you think so? Can you provide any examples?

16. Do you think that the teachers understand enough about his/her strengths and needs to support him/her appropriately?

Yes	No	Don't know

16a. Why? Can you provide any examples?

17. How satisfied do you feel about the family's involvement in the decisions about XXXs statement of special educational needs?

1. Very satisfied	2. Satisfied	3. Dissatisfied	4. Very dissatisfied

    17a. Why?

18. How satisfied are you that the school involved you in decisions about the amount of support XXX receives?

1. Very satisfied	2. Satisfied	3. Dissatisfied	4. Very dissatisfied

    18a. Why?

19. How do you feel about your involvement in XXXs choices and progress?

1. Want to be more involved	
2. Involved about the right amount	
3. Want to be less involved	
4. Don't know	

    Any comments:

20. What sort of outcomes do you want for your child over the next year or more?

    20a. Have the school staff discussed these outcomes with you?

21. Overall, How satisfied are you with the school XXX has attended this year?

1. Very satisfied	2. Satisfied	3. Dissatisfied	4. Very dissatisfied

    21a. Why?

22. Are you paying for extra support for your child to help with his/her special educational needs?

Yes	No

22a. If yes, what are you paying for?

22b. If yes, is this extra support ongoing or was it a one off assessment?

23. If you could change one aspect of the help or support that xxx is receiving what would that be?

24. What are your hopes and expectations in relation to XXX's future?

Family composition

25. Does XXX have brothers and sisters?

25a. If yes, how old are they?

25b. How does XXX get on with them?

26. Do they also experience any kind of learning or other difficulties?

26a. If yes, what kind of difficulties do they experience?

27. Is there anyone other than yourself involved in XXX's upbringing on a day to day basis?

28. How many people are living in your house?

Socio-economic status

29. Which of the following best describes your work situation (ask the same question for partner, if applicable)?

	Interviewee	Partner
1. Paid employment		
2. Volunteer work		
3. Prime homemaker		
4. Long term sick		
5. Unemployed		
6. Student		
7. Retired		

29a. If in paid employment, what is job/occupation?

Interviewee	
Partner	

29b. How many hours a week do you usually work in this job? (Ask the same question for partner, if applicable)

	Interviewee	Partner
More than 25 hours a week		
Less than 25 hours a week		

30. When did you finish formal education? What is the highest educational qualification that you had? (Ask the same question for partner, if applicable)

	Interviewee	Partner
Age finished formal education		
Highest educational qualification		

Just before we finish can you please confirm your postcode and address?

Thank you very much for your cooperation, we will be keeping in touch with you. Have you received our questionnaire through the post? Have you sent it back? If not, we will shortly be sending you a brief questionnaire to complete.

General notes:

APPENDIX 9   - ANALYSES

In this Appendix we report the results of analysis which are summarised in the main report. For example, we typically use figures in the main report: tables of descriptive statistics are therefore included here. Also, we present the results of analyses such as ANOVAs with full information including post hoc test results.

A separate table of contents for this Appendix is presented first, followed by the data, which are reported by section number in the main report.

47

APPENDICES

2.3. Design

Table 1. Opt in vs. opt out consent screening phase

Measure	Opt in			Opt out/ no response			Analysis (ANOVA)
	N	*M*	*SD*	*N*	*M*	*SD*	
Age	171	109.2	28.3	99	105.6	28.0	$F(1,268)=1.02$, *ns* .05, $\eta^2=.00$
BAS Matrices II	170	-.42	1.22	98	-.69	1.1	$F(1,266)=3.16$, *p*<.05, $\eta^2=3.16$
CELF RS	167	-1.67	1.15	98	-1.72	1.0	$F(1,263)=.15$, *ns.*, $\eta^2=.00$
CELF WC total	169	-1.26	1.14	96	-1.3	.92	$F(1,263)=.08$, *ns* , $\eta^2=.00$
SRS total	160	1.06	1.19	83	.96	.99	$F(1,241)=.44$, *ns* .05, $\eta^2=.00$

Note: BAS II = British Ability Scale; CELF RS = Clinical Evaluation of Language Fundamentals recalling sentences; CELF WS = Clinical Evaluation of Language Fundamentals word classes; SRS = Social Responsiveness Scale.

Table 2. Frequency with chi-square for consent

Consent	LI-av-NV	ASD-av-NV	LI-low-NV	ASD-low-NV	Total	Analysis (Chi-square)
Opt in	74	51	30	16	171	$X^2(3)=.78$, *ns.*
Opt out/no response	45	25	20	9	99	
Total	119	76	50	25	270	

Table 3. Frequency with chi-square for consent by type of provision

Consent	Mainstream	Language provision	ASD provision	Total	Analysis (Chi-square)
Opt in	125	31	15	171	$X^2(2)=1.7$,
Opt out/no response	77	12	10	99	*ns.*
Total	202	43	25	270	

Table 4. Cohort effects for participant characteristics

Measure	LI-av-NV	ASD-av-NV	LI-low-NV	ASD-low-NV	Total
ASD resource	0	11	0	3	14
Language resource	20	1	9	0	30
Mainstream	50	38	19	11	118
Total	70	50	28	14	162

Table 5. Cohort effects on screening measures

Measure	LI-av-NV			ASD-av-NV			LI-low-NV			ASD-low-NV			Analysis (ANOVA) and group comparisons (Bonferroni)
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	
BAS matrices II	45	-.18	.82	44	.36	1.07	24	-2	.43	12	-1.74	.31	$F(3,121)=52.9$, $p<.001$, $\eta^2=.57$; LI-av-NV=ASD-av-NV, LI-av-NV>LI-low-NV, ASD-av-NV>ASD-low-NV, LI-av-NV>ASD-low-NV, ASD-av-NV>LI-low-NV, LI-low-NV = ASD-low-NV
CELF-4 RS	45	- 2.25	.71	44	- 1.1	1.38	23	- 1.7	.86	12	- 1.69	1.37	$F(3,120)=8$, $p<.001$, $\eta^2=.17$; LI-av-NV<ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV=LI-low-NV, LI-low-NV = ASD-low-NV
CELF-4 WC	45	- 1.48	.79	44	- .6	1.35	23	-1.61	.83	11	-1.55	1.33	$F(3,119)=7.02$, $p<.001$, $\eta^2=.15$; LI-av-NV<ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV>LI-low-NV, LI-low-NV = ASD-low-NV

Note: BAS II - ANCOVA no main effect of nonverbal ability necessary; BAS II = British Ability Scale; CELF RS = Clinical Evaluation of Language Fundamentals recalling sentences; CELF WS = Clinical Evaluation of Language Fundamentals word classes

Table 6. Year group effects on screening measures

Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons
		N	*M*	*SD*	*N*	*M*	*SD*	(Bonferroni)
BAS II matrices[1]	Year 3	25	-.64	1.26	19	-.25	1.18	Main effect of year group: $F(2,119)=.33$, *ns.* , $\eta^2= 06$
								Main effect of cohort: $F(1,119)=10.47$, $p<.01$, $\eta^2=.81$; ASD>LI
	Year 5	18	-.71	1.29	12	.08	1.69	Year group x cohort interaction: $F(2,119)=.73$, *ns*, $\eta^2=.01$
	Year 7	26	-1.04	.82	25	-.05	1.20	
CELF-4 RS	Year 3	24	-2.01	.78	19	-1.6	1.37	Main effect of year group: $F(2,117)=1.1$, *ns.*, $\eta^2=.02$
	Year 5	18	-1.83	.76	12	-1.56	1.04	Main effect of cohort: $F(1,117)=9.0$, $p<.01$, $\eta^2=.07$; LI>ASD
	Year 7	26	-2.23	.82	25	-.78	1.46	Main effect of nonverbal ability: $F(1,117)=2.82$, $p<.05$, $\eta^2=.02$
								Year group x cohort interaction: $F(2,117)=3.5$, $p<.05$, $\eta^2=.06$;
								1) LI: Y3=Y5, Y5=Y7, Y3=Y7, for ASD: Y3=Y5, Y5=Y7, Y3<Y7
								2) Y3: LI=ASD, Y5: LI=ASD, Y7: ASD>LI
CELF-4 WC	Year 3	24	-1.49	.81	18	-1.28	1.14	Main effect of year group: $F(2,116)=2$, *ns.*05, $\eta^2=.03$
	Year 5	18	-1.13	.85	12	-.89	1.12	Main effect of cohort: $F(1,116)=2.8$, *ns*, $\eta^2=.02$
	Year 7	26	-1.83	.65	25	-.39	1.58	Main effect of nonverbal ability: $F(1,116)=39.5$, $p<.001$, $\eta^2=.25$
								Year group x cohort interaction: $F(2,116)=4.64$, $p<.05$, $\eta^2=.07$;
								1) LI: Y3=Y5, Y5=Y7, Y3=Y7, for ASD: Y3=Y5, Y5=Y7, Y3<Y7
								2) Y3: LI=ASD, Y5: LI=ASD, Y7: ASD>LI

Note: BAS II = British Ability Scale; CELF RS = Clinical Evaluation of Language Fundamentals recalling sentences; CELF WS = Clinical Evaluation of Language Fundamentals word classes

[1]. BAS II ANOVA not ANCOVA was carried out as main effect of nonverbal ability was not necessary

Table 7. Social Responsiveness Scale (SRS) subscales screening measures

Measure	LI-av-NV			ASD-av-NV			LI-low-NV			ASD-low-NV			Analysis (ANOVA) and group comparisons (Bonferroni)
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	
SA	60	.62	1.19	48	1.31	1.23	26	.29	.92	12	1.9	1.14	$F(3,142) =8.6$, $p<.001$, $\eta^2=.15$; LI-av-NV>ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV>ASD-low-NV, ASD-av-NV<LI-low-NV, LI-low-NV > ASD-low-NV
SCog	60	.81	1.18	48	1.65	1.24	26	.72	1.05	12	2.3	1.09	$F(3,142)=9.54$, $p<.001$, $\eta^2=.17$; LI-av-NV>ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV>ASD-low-NV, ASD-av-NV<LI-low-NV, LI-low-NV ASD-low-NV
SCom	60	.82	1.19	48	1.47	1.14	26	.67	.73	12	1.95	1	$F(3,142)=7.05$, $p<.001$, $\eta^2=.13$; LI-av-NV>ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV>ASD-low-NV, ASD-av-NV<LI-low-NV, LI-low-NV > ASD-low-NV
M	60	.37	.91	48	1.21	1.18	26	.67	.93	12	1.91	.81	$F(3,142)=11.39$, $p<.001$, $\eta^2=.19$; LI-av-NV>ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV>ASD-low-NV, ASD-av-NV<LI-low-NV, LI-low-NV > ASD-low-NV
AM	60	.49	1.07	48	1.7	1.38	26	.55	.76	12	2.03	.89	$F(3,142)=14.98$, $p<.001$, $\eta^2=.24$; LI-av-NV>ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV>ASD-low-NV, ASD-av-NV=LI-low-NV, LI-low-NV > ASD-low-NV
Total	60	.71	1.10	48	1.62	1.23	26	.66	.74	12	2.17	.92	$F(3,142)=11.7$, $p<.001$, $\eta^2=.20$; LI-av-NV>ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV>ASD-low-NV, ASD-av-NV=LI-low-NV, LI-low-NV > ASD-low-NV

Note: SA = social awareness; Scog = social cognition; Scom = social communication; M = social motivation; AM = autistic mannerisms.

Table 8. Provision effects on screening measures

Measure	Mainstream (MS)			Mainstream language provision (LP)			Mainstream ASD provision (ASDP)			Analysis (ANOVA) and group comparisons (Bonferroni)
	N	M	SD	N	M	SD	N	M	SD	
CELF-4 RS	116	- 1.5	1.11	28	- 2.3	.81	14	- 1.57	1.45	$F(2,155) =5.56, p<.01\ \eta^2=.07$; MS=ASDP, MS>LP, ASDP= LP
CELF-4 WC	117	- 1.1	1.1	29	- 1.66	1	14	- 1.52	1.64	$F(2,157) =3.3, ns.$ MS=ASDP, MS=LP, ASDP= LP
BAS II matrices	117	-.31	1.26	30	-.61	1.19	14	-.52	1.16	$F(2,158) =.78, ns.\ \eta^2=.01$
SRS AS	103	1.16	1.21	29	.67	1.03	14	1.8	1.09	$F(2,143) =4.57, p<.001\ \eta^2=.06$; MS>ASDP, MS=LP, ASDP< LP

Note: CELF RS = Clinical Evaluation of Language Fundamentals recalling sentences; CELF WS = Clinical Evaluation of Language Fundamentals word classes; BAS II = British Ability Scale; SRS AS = Social Responsiveness Scale autistic symptomology

Table 9. Cohort effects on Socio-Economic Status (SES) as measured by Income Deprivation Affecting Children Index (IDACI)

Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
	N	M	SD	N	M	SD	
Year 3	25	.28	1.15	19	.39	.29	Main effect of year group: $F(2,117)=1.07, ns., \eta^2=.02$
Year 5	17	.36	.18	12	.29	.18	Main effect of cohort: $F(1,117)=.45, ns, \eta^2=.00$
Year 7	26	.30	.15	25	.28	.16	Main effect nonverbal ability: $F(1,117)=3.42, p<.05, \eta^2=.03$
							Year group x cohort interaction: $F(2,117)=2.28, ns., \eta^2=.04$

3.2. How did pupils perform on standardised measures of language?

Table 10. Cohort effects on expressive and receptive measures of language at Time 1 and Time 2

Time	Measure	LI-av-NV			ASD-av-NV			LI-low-NV			ASD-low-NV			Analysis (ANOVA) and group comparisons (Bonferroni)
		N	M	SD	N	M	SD	N	M	SD	N	M	SD	
Time 1	CELF (E)	40	-2.6	.65	37	-1.1	1.4	21	-2.27	.82	9	-1.7	1.53	Main effect of cohort: $F_{(3,103)}$ =17.08,
Time 1	CELF (R)	40	-1.67	.75	37	-.48	.94	21	-1.85	.56	9	-1.39	1.28	$p<.001$, $\eta^2=.33$; LI-av-NV<ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV>LI-low-NV, LI-low-NV =ASD-low-NV

Main effect of task: $F_{(1,103)}$ =41.68, $p<.001$, $\eta^2=.29$; CELF E<CELF R

Cohort and task interaction: $F_{(3,103)}$ =2.97, $p<.05$, $\eta^2=.08$;

1) LI-av-NV: CELF E<CELF R, ASD-av-NV: CELF E<CELF R, LI-low-NV: CELF E<CELF R, ASD-low-NV: CELF E= CELF R

2) CELF E: LI-av-NV<ASD-av-NV, LI-av-NV= LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV >LI-low-NV, ASD-low-NV=LI-low-NV; CELF R: LI-av-NV<ASD-av-NV, LI-av-NV= LI-low-NV, ASD-

												av-NV>ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV >LI-low-NV, ASD-low-NV=LI-low-NV
Time 2	WIAT (E)	41	-1.69	1.03	39	-.68	1.17	23	-1.73	.84	10	-1.14	1.26	Main effect of cohort: $F(3,109)=4.59$, $p<.01$, $\eta^2=.11$; LI-av-NV<ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV>LI-low-NV, LI-low-NV =ASD-low-NV
Time 2	WIAT (R)	41	-1.09	.92	39	-.67	1.3	23	-1.03	1.23	10	-.93	1.7	
													Main effect of task: $F(1,109)=7.53$, $p<.01$, $\eta^2=.07$; CELF E<CELF R
													Cohort and task interaction: $F(3,109)=2.12$, $ns.$, $\eta^2=.06$;

Note: CELF (E) = Clinical Evaluation of Language Fundamentals expressive; CELF (R)= Clinical Evaluation of Language Fundamentals receptive; WIAT (E) = Wechsler Individual Achievement Test expressive; WIAT (R) = Wechsler Individual Achievement Test receptive

Table 11. Year group effects on expressive and receptive measures of language

Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
		N	M	SD	N	M	SD	
CELF (E)	Year 3	20	-2.71	.81	13	-2.06	1.22	Main effect of year group: $F(2,101)= 4.96$, $p<.01$, $\eta^2=.09$; Y3=Y5, Y5=Y7,
	Year 5	17	-2.01	.67	11	-1.46	1.05	Y3<Y7
	Year 7	24	-2.65	.53	23	-.73	1.56	Main effect of cohort: $F(1,101)=16.68$, $p<.001$, $\eta^2=.14$; ASD>LI
								Year group x cohort interaction: $F(2,101)=4.93$, $p<.01$, $\eta^2=.01$
CELF (R)	Year 3	24	-1.53	.78	18	-1.22	1.12	Main effect of year group: $F(2,116)=.33$, *ns.*, $\eta^2=.01$
	Year 5	18	-1.59	.59	12	-.9	1.13	Main effect of cohort: $F(1,116)=13.16$, $p<.001$, $\eta^2=.10$ ASD>LI
	Year 7	26	-2.08	.54	25	-.58	1.13	Main effect of nonverbal ability: $F(1,116)=45.29$, $p<.001$, $\eta^2=.28$
								Year group x cohort interaction: $F(2,116)=4.94$, $p<.01$, $\eta^2=.08$;
WIAT (E)	Year 3	23	-1.72	.95	17	-1.2	1.28	Main effect of year group: $F(2,112)=1.36$, *ns.*, $\eta^2=.02$
	Year 5	17	-1.39	1.02	11	-.81	1.24	Main effect of cohort: $F(1,112)=7.87$, $p<.01$, $\eta^2=.07$; ASD>LI
	Year 7	26	-1.86	.92	25	-.55	1.08	Main effect of nonverbal ability: $F(1,112)=16.74$, $p<.001$, $\eta^2=.13$
								Year group x cohort interaction: $F(2,112)=1.57$, *ns.*, $\eta^2=.03$;
WIAT (R)	Year 3	21	-1.46	.73	14	-1.38	1	Main effect of year group: $F(2,107)=6.41$, $p<.01$, $\eta^2=.12$; Y3=Y5, Y5=Y7,
	Year 5	17	-1.26	.85	11	-.53	1.32	Y3<Y7
	Year 7	26	-.62	1.2	25	-.45	1.47	Main effect of cohort: $F(1,107)=.53$, *ns.*, $\eta^2=.01$
								Main effect of nonverbal ability: $F(1,107)=6.04$, $p<.05$, $\eta^2=.05$
								Year group x cohort interaction: $F(2,107)=.76$, *ns.*, $\eta^2=.01$

Note: CELF (E) = Clinical Evaluation of Language Fundamentals expressive; CELF (R) = Clinical Evaluation of Language Fundamentals receptive; WIAT (E) = Wechsler Individual Achievement Test expressive; WIAT (R) = Wechsler Individual Achievement Test receptive

3.2.2. Subcomponents of the language system

Table 12. Cohort effects on subcomponents of the language system

Measure	LI-av-NV			ASD-av-NV			LI-low-NV			ASD-low-NV			Analysis (ANOVA) and group comparisons (Bonferroni)
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	
PhAB	45	-1.08	.67	42	-.39	1.06	23	-1.18	.79	8	-.87	1.32	$F(3,114)=5.7$, $p<.01$, $\eta^2=.13$; LI-av-NV<ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV=LI-low-NV,ASD-low-NV=LI-low-NV
BPVS	45	-1.7	.44	44	-.69	1.18	24	-1.56	.56	11	-1.22	1.19	$F(3,120)=11.13$, $p<.001$, $\eta^2=.22$; LI-av-NV<ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV<LI-low-NV,ASD-low-NV=LI-low-NV
TROG	44	-1.57	.95	43	-.94	1.37	24	-1.76	.93	11	-1.61	1.62	$F(3,118)=3.34$, $p<.05$, $\eta^2=.08$; LI-av-NV=ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV>LI-low-NV,ASD-low-NV=LI-low-NV

Note: PhAB = Phonological Assessment Battery; BPVS = British Picture Vocabulary Scale; TROG = Test of Receptive Grammar

Table 13. Year group effects on the subcomponents of the language system

Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
		N	M	SD	N	M	SD	
PhAB	Year 3	24	-.99	.67	15	-.67	1.17	Main effect of year group: $F(2,111)=.13$, *ns.*, $\eta^2=.00$
	Year 5	18	-1	.78	11	-.41	1.18	Main effect of cohort: $F(1,111)=5.75$, $p<.05$, $\eta^2=.05$; ASD>LI
	Year 7	26	-1.31	.67	24	-.37	1.06	Year group x cohort interaction: $F(2,111)=1.09$, *ns.*, $\eta^2=.02$;
BPVS	Year 3	25	-1.65	.45	19	-1.15	1.1	Main effect of year group: $F(2,117)=3.98$, $p<.05$, $\eta^2=.06$; Y3=Y5, Y3=Y7,
	Year 5	18	-1.63	.58	11	-1.16	.96	Y5=Y7
	Year 7	26	-1.66	.47	25	-.37	1.24	Main effect of cohort: $F(1,117)=13.58$, $p<.001$, $\eta^2=.10$ ASD>LI
								Main effect of nonverbal ability: $F(1,117)=10.45$, $p<.01$, $\eta^2=.08$
								Year group x cohort interaction: $F(2,117)=3.14$, $p<.05$, $\eta^2=.05$;
TROG	Year 3	24	-2.23	.85	18	-2.13	1.28	Main effect of year group: $F(2,115)=21.87$, $p<.001$, $\eta^2=.28$; Y3<Y5, Y5=Y7,
	Year 5	18	-1.35	.64	11	-.76	1.26	Y3<Y7
	Year 7	26	-1.29	.96	25	-.46	1.21	Main effect of cohort: $F(1,115)=1.89$, *ns.*, $\eta^2=.02$
								Main effect of nonverbal ability: $F(1,115)=13.54$, $p<.001$, $\eta^2=.11$
								Year group x cohort interaction: $F(2,115)=.98$, *ns.*, $\eta^2=.02$;

Note: PhAB = Phonological Assessment Battery; BPVS = British Picture Vocabulary Scale; TROG = Test of Receptive Grammar

Table 14. Time point effects on the subcomponents of the language system at Time 1 and Time 2

Time	Measure	LI			ASD			Analysis (ANOVA) and group comparisons (Bonferroni)
		N	M	SD	N	M	SD	
Time 1	BPVS	97	-1.54	.62	62	-.81	1.14	Main effect of time: $F(1,156) = 1.76$, *ns.*, $\eta^2 = .01$
Time 2	BPVS	97	-1.47	.67	62	-.77	1.22	Main effect of cohort: $F(1,156) = 20.07$, $p<.001$, $\eta^2 = .11$; ASD>LI
								Cohort x time interaction: $F(1,156) = .14$, ns., $\eta^2 = .00$
Time 1	TROG	94	-1.64	1.02	60	-1.16	1.41	Main effect of time: $F(1,151) = 1.95$, *ns.*, $\eta^2 = .01$
								Main effect of cohort: $F(1,151) = 5.01$, $p<.05$, $\eta^2 = .03$; ASD>LI
Time 2	TROG	94	-1.58	1.02	60	-1.04	1.33	Cohort x time interaction: $F(1,151) = .04$, *ns.*, $\eta^2 = .00$

Note: BPVS = British Picture Vocabulary Scale; TROG = Test of Receptive Grammar

3.2.3. Comparing structural and pragmatic language

Table 15. Comparing structural and pragmatic language using the CCC-2

Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
	N	M	SD	N	M	SD	
Structural							
Speech	44	-2.18	1.12	39	-1.15	1.29	Main effect of cohort: $F(1,80)=13.26$, $p<.001$, $\eta^2=.14$; ASD>LI
							Main effect of nonverbal ability: $F(1,80)=1.00$, $ns.$, $\eta^2=.01$
Syntax	44	-2.37	1.03	39	-1.54	1.17	Main effect of cohort: $F(1,80)=8.67$, $p<.01$, $\eta^2=.10$; ASD>LI
							Main effect of nonverbal ability: $F(1,80)=7.59$, $p<.01$, $\eta^2=.09$
Semantic	44	-2.05	1.05	39	-1.7	1.19	Main effect of cohort: $F(1,80)=.47$, $ns.$, $\eta^2=.01$
							Main effect of nonverbal ability: $F(1,80)=17.60$, $p<.001$, $\eta^2=.20$
Coherence	44	-1.97	.99	39	-2	.93	Main effect of cohort: $F(1,80)=.28$, $ns.$, $\eta^2=.00$
							Main effect of nonverbal ability: $F(1,80)=2.89$, $ns.$, $\eta^2=.04$
Pragmatic							
Inappropriate	44	-1.4	.78	39	-1.85	.72	Main effect of cohort: $F(1,80)=7.99$, $p<.01$, $\eta^2=.09$; ASD<LI
							Main effect of nonverbal ability: $F(1,80)=.95$, $ns.$, $\eta^2=.01$
Stereotyped	44	-1.83	1.02	39	-2.05	.77	Main effect of cohort: $F(1,80)=2.84$, $ns.$, $\eta^2=.03$
							Main effect of nonverbal ability: $F(1,80)=7.11$, $p<.01$, $\eta^2=.08$
Context	44	-1.93	1.03	39	-2.53	.76	Main effect of cohort: $F(1,80)=12.17$, $p<.01$, $\eta^2=.13$; ASD<LI
							Main effect of nonverbal ability: $F(1,80)=5.8$, $p<.05$, $\eta^2=.07$

Nonverbal	44	-1.66	1.08	38	-2.35	.74	Main effect of cohort: $F(1,79)=11.65$, $p<.01$, $\eta^2=.13$; ASD<LI
							Main effect of nonverbal ability: $F(1,79)=.58$, $p<.001$, $\eta^2=.7$
Social relations	44	-1.66	1.1	39	-2.5	.77	Main effect of cohort: $F(1,80)=16.27$, $p<.001$, $\eta^2=.17$; ASD<LI
							Main effect of nonverbal ability: $F(1,80)=.61$, $ns.$, $\eta^2=.01$
Interests	44	-1.41	.74	39	-2.04	.59	Main effect of cohort: $F(1,80)=19.67$, $p<.001.$, $\eta^2=.20$; ASD<LI
							Main effect of nonverbal ability: $F(1,80)=1.22$, $ns.$, $\eta^2=.02$

Table 16. Proportion of cohort according to the CCC-2 on the General Communication Composite (GCC) and Social Interaction Deviance score (SID)

Measure		LI	ASD	Total	Analysis (Chi-square)
GCC subscale	bottom 3%	32	25	57	$X^2(2)=1.43$, *ns.*
	bottom 4-10%	6	9	15	
	remainder	6	4	10	
	Total	44	38	82	
SID subscale	PLI/ASD range	7	24	31	$X^2(2)=29.33$, *p*<.001
	Borderline range	17	14	31	
	Typical LI range	20	0	20	
	Total	44	38	82	

Table 17. Performance by year group (younger and older) on the structural of CCC-2

Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
		N	M	SD	N	M	SD	
Speech	Younger	25	-2.13	1.13	12	-1.14	1.37	Main effect of year group: $F(1,78)=.23$, *ns.*, $\eta^2=.00$
	Older	19	2.25	1.13	27	-1.15	1.28	Main effect of cohort: $F(1,78)=12.1$, $p<.01$, $\eta^2=.13$;ASD>LI
								Main effect of nonverbal ability: $F(1,78)=.91$, *ns.*, $\eta^2=.01$
								Year group x cohort interaction: $F(1,78)=.00$, *ns*, $\eta^2=.00$;
Syntax	Younger	25	-2.12	1.2	12	-1.75	1.11	Main effect of year group: $F(1,78)=.16$, *ns.*, $\eta^2=.00$
	Older	19	-2.7	.66	27	-1.44	1.21	Main effect of cohort: $F(1,78)=7.93$, $p<.01$, $\eta^2=.09$; ASD>LI
								Main effect of nonverbal ability $F(1,78)=5.63$, $p<.05$, $\eta^2=.07$
								Year group x cohort interaction: $F(1,78)=1.69$, *ns.*, $\eta^2=.02$
Semantic	Younger	25	-1.68	1.13	12	-1.39	1.17	Main effect of year group: $F(1,78)=6.76$, $p<.05$, $\eta^2=.08$; younger>older
	Older	19	-2.54	.7	27	-1.84	1.2	Main effect of cohort: $F(1,78)=1.91$, *ns*, $\eta^2=.02$
								Main effect of nonverbal ability: $F(1,78)=15.67$, $p<.001$, $\eta^2=.17$
								Year group x cohort interaction: $F(1,78)=.01$, *ns.*, $\eta^2=.00$
Coherence	Younger	25	-1.81	1	12	-1.91	.84	Main effect of year group: $F(1,78)=1.03$, *ns.*, $\eta^2=.01$;
	Older	19	-2.18	.97	27	-2.1	.98	Main effect of cohort: $F(1,78)=.06$, *ns.*, $\eta^2=.00$; ASD=LI
								Main effect of nonverbal ability $F(1,78)=2.29$, *ns.*, $\eta^2=.03$
								Year group x cohort interaction: $F(1,78)=.04$, *ns.*, $\eta^2=.00$

Table 18. Performance by year group (younger and older) on the pragmatic of CCC-2

Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
		N	M	SD	N	M	SD	
Inappropriate	Younger	25	-1.13	.75	12	-1.47	.83	Main effect of year group: $F(1,78)=12.27$, $p<.01$, $\eta^2=.14$;
	Older	19	-1.75	.68	27	-2.01	.61	younger>older Main effect of cohort: $F(1,78)=3.69$, *ns.*, $\eta^2=.05$
								Main effect of nonverbal ability: $F(1,78)=.44$, *ns.*, $\eta^2=.01$
								Year group x cohort interaction: $F(1,78)=.01$, *ns.*, $\eta^2=.00$
Stereotyped	Younger	25	-1.55	1.04	12	-1.78	1.01	Main effect of year group: $F(1,78)=6.1$, $p<.05$, $\eta^2=.07$; younger>older
	Older	19	-2.19	.89	27	-2.17	.62	Main effect of cohort: $F(1,78)=.97$, *ns.*, $\eta^2=.01$
								Main effect of nonverbal ability: $F(1,78)=5.83$, $p<.05$, $\eta^2=.07$
								Year group x cohort interaction: $F(1,78)=.02$, *ns.*, $\eta^2=.00$
Context	Younger	25	-1.65	1.07	12	-2.19	.81	Main effect of year group: $F(1,78)=7.25$, $p<.01$, $\eta^2=.09$; younger>older
	Older	19	-2.3	.89	27	-2.68	.7	Main effect of cohort: $F(1,78)=7.28$, $p<.01$, $\eta^2=.09$; ASD<LI
								Main effect of nonverbal ability: $F(1,78)=4.79$, *ns.*, $\eta^2=.06$
								Year group x cohort interaction: $F(1,78)=.00$, *ns.*, $\eta^2=.00$
Nonverbal	Younger	25	-1.43	1.14	11	-2.24	.7	Main effect of year group: $F(1,77)=2.42$, *ns.*, $\eta^2=.03$
	Older	19	-1.97	.93	27	-2.4	.76	Main effect of cohort: $F(1,77)=8.32$, $p<.01$, $\eta^2=.10$; ASD<LI
								Main effect of nonverbal ability: $F(1,77)=.19$, *ns.*, $\eta^2=.00$
								Year group x cohort interaction: $F(1,77)=.59$, *ns.*, $\eta^2=.011$
Social relations	Younger	25	-1.31	1.11	12	-2.19	.83	Main effect of year group: $F(1,78)=8.55$, $p<.01$, $\eta^2=.10$; younger>older
	Older	19	-2.12	.92	27	-2.63	.72	Main effect of cohort: $F(1,78)=10.9$, $p<.01$, $\eta^2=.12$; ASD<LI
								Main effect of nonverbal ability: $F(1,78)=.13$, *ns.*, $\eta^2=.00$
								Year group x cohort interaction: $F(1,78)=.65$, *ns.*, $\eta^2=.01$

Interests	Younger	25	-1.12	.73	12	-1.69	.61	Main effect of year group: $F(1,78)=16.7$, $p<.001$, $\eta^2=.18$;
	Older	19	-1.79	.56	27	-2.2	.52	younger>older Main effect of cohort: $F(1,78)=12.56$, $p<.01$, $\eta^2=.14$;
								ASD<LI
								Main effect of nonverbal ability: $F(1,78)=.5$, *ns.*, $\eta^2=.01$
								Year group x cohort interaction: $F(1,78)=.19$, *ns.*, $\eta^2=.00$

3.3. How did pupils perform on cognitive and memory measures?

3.3.1. Nonverbal ability

Table 19. Cohort effects Wechsler Abbreviated Intelligence Scale (WASI) subtests

Measure	LI-av-NV			ASD-av-NV			LI-low-NV			ASD-low-NV			Analysis (ANOVA) and group comparisons
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	(Bonferroni)
WASI matrix reasoning	70	-.39	1.09	49	.02	1.04	28	-1.45	.99	11	-.92	1.37	$F(3,157) = 11.71$, $p<.001$, $\eta^2=.19$; ASD-av-NV = LI-av-NV> LI-low-NV LI-av-NV = ASD-low-NV, ASD-low-NV= ASD-av-NV
WASI vocabulary	68	-2.13	.89	49	-1.28	1.4	27	-2.27	.66	13	-1.86	1.2	$F(3,156) = 7.47$, $p<.001$, $\eta^2=.13$; ASD-av-NV = ASD-low-NV ASD-av-NV >LI-av-NV=LI-low-NV ASD-low-NV= LI-av-NV =LI-low-NV

Table 20. Time point effects (Screening v Time 2) on the British Ability Scale II Matrices (BAS II)

	LI-av-NV			ASD-av-NV			LI-low-NV			ASD-low-NV			Repeated measures ANOVA
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	
Screening	70	-.01	.91	50	.34	1.03	26	-1.98	.42	12	-1.79	.31	Main effect of time point: $F(1,154)$ =6.65, p=.004 η2=.05, LI-av-NV=ASD-av-NV >LI-low-NV =ASD-low-NV
Time 2	70	-.11	.97	50	.04	1.13	26	-1.23	.78	12	-1.19	.93	Main effect of cohort: $F(1,154)$= 36.64, p<.001, η2=.42 Time x cohort interaction: $F(1,154)$ = 11.91 p<.001, η2=.19 Time 1=Time 2 LI-av-NV Time 1 > Time 2 ASD-av-NV >LI-low-NV =ASD-low-NV

3.3.2. Memory

Table 21. Cohort effects on the Automated Working Memory Assessment (AWMA) subtests

Measure	LI-av-NV			ASD-av-NV			LI-low-NV			ASD-low-NV			Analysis (ANOVA) and group comparisons (Bonferroni)
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	
Digit recall	70	-.87	.9	48	-.35	1.03	28	-.95	.89	14	-.86	1.19	$F(3,156)=3.52$, $p<.05$, $\eta^2=.06$; LI-av-NV<ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV>LI-low-NV, ASD-low-NV=LI-low-NV
Backwards digit recall	70	-.91	.94	48	-.55	1.11	28	-1.2	.89	13	-1.23	1.49	$F(3,155)=3.03$, $p<.05$, $\eta^2=.06$; LI-av-NV=ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV=LI-low-NV, ASD-low-NV= LI-low-NV
Dot matrix	69	-.71	1.15	48	-.41	1.37	28	-.91	.87	14	-.89	.92	$F(3,155)=1.38$, $ns.$, $\eta^2=.03$
Spatial recall	68	-.58	1.16	43	-.24	1.2	27	-.77	.99	11	-1.51	1.31	$F(3,145)=3.84$, $p<.01$, $\eta^2=.07$; LI-av-NV=ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV>ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV=LI-low-NV, ASD-low-NV=LI-low-NV
Spatial recall processing	68	-.79	1.12	43	-.27	1.32	27	-.84	.98	11	-1.19	.86	$F(3,145)=2.97$, $ns.$, $\eta^2=.06$

Table 22. Year group effects on the Automated Working Memory Assessment (AWMA) subtests

Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
		N	M	SD	N	M	SD	
Digit recall	Year 3	25	-1.07	1.06	18	-.76	1.02	Main effect of year group: $F(1,117)=.69$, ns., $\eta^2=.01$
	Year 5	18	-.67	.88	12	-.63	.96	Main effect of cohort: $F(1,117)=3.1$, ns., $\eta^2=.03$
	Year 7	26	-1.22	.68	25	-.23	1.18	Main effect of nonverbal ability: $F(1,117)=$ ns., $\eta^2=.05$
								Year group x cohort interaction: $F(2,117)=2.23$, ns., $\eta^2=.04$
Backwards digit recall	Year 3	25	-1	.95	18	-1.11	1.15	Main effect of year group: $F(2,117)=3.13$, $p<.05$, $\eta^2=.05$; Y3=Y5, Y3=Y7, Y5=Y7
								Main effect of cohort: $F(1,117)=.37$, ns., $\eta^2=.00$
	Year 5	18	-1.07	.77	12	-.89	.9	Main effect of nonverbal ability: $F(1,117)=13.15$, $p<.001$, $\eta^2=.10$
	Year 7	26	-1.03	.69	25	-.22	1.31	Year group x cohort interaction: $F(2,117)=1.96$, ns., $\eta^2=.03$;
Dot matrix	Year 3	24	-.72	1.02	18	-.66	1.64	Main effect of year group: $F(2,116)=1.28$, ns., $\eta^2=.02$
	Year 5	18	-1.03	.69	12	-.69	1.23	Main effect of cohort: $F(1,116)=.03$, ns., $\eta^2=.00$
	Year 7	26	-.79	1.43	25	-.25	1.13	Main effect of nonverbal ability: $F(1,116)=18.63$, $p<.001$, $\eta^2=.14$
								Year group x cohort interaction: $F(2,116)=.12$, ns., $\eta^2=.00$
Spatial recall	Year 3	23	-.56	1.19	16	-.98	1.1	Main effect of year group: $F(2,108)=.98$, ns., $\eta^2=.02$;
	Year 5	18	-.77	1.01	11	-.42	1.65	Main effect of cohort: $F(1,108)=.00$, ns., $\eta^2=.00$
	Year 7	25	-.83	1.26	22	-.01	1.25	Main effect of nonverbal ability: $F(1,108)=11.69$, $p<.01$, $\eta^2=.10$
								Year group x cohort interaction: $F(2,108)=1.9$, ns., $\eta^2=.03$
Spatial recall processing	Year 3	23	-.64	1.09	16	-1.08	1.28	Main effect of year group: $F(2,108)=1.07$, ns., $\eta^2=.02$
								Main effect of cohort: $F(1,108)=1.6$, ns., $\eta^2=.02$
	Year 5	18	-1.16	1.49	11	-.14	1.55	Main effect of nonverbal ability: $F(1,108)=8.42$, $p<.01$, $\eta^2=.07$
	Year 7	25	-.96	1.08	22	-.00	1.1	Year group x cohort interaction: $F(2,108)=3.13$, $p<.05$, $\eta^2=.06$

3.4. How did pupils perform on literacy assessments?

3.4.1. Reading

Table 23. Performance on reading measures at Time 1

Measure	LI-av-NV			ASD-av-NV			LI-low-NV			ASD-low-NV			Analysis (ANOVA) and group comparisons (Bonferroni)
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	
SWRT (WA)	64	-.87	1.06	49	-.19	1.07	26	-1.24	.73	12	-.39	1.29	$F(3,147)=7.21$, $p<.001$, $\eta^2=.13$; LI-av-NV<ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV>LI-low-NV, ASD-low-NV > LI-low-NV
TOWRE (WE)	68	-.48	1.04	47	-.21	1.16	25	-.80	.89	11	-.57	.91	$F(3,147)=1.8$, *ns.*, $\eta^2=.04$
TOWRE (NWE)	66	-.57	1.09	47	-.04	1.29	25	-.79	.98	11	-.20	1.26	$F(3,145)=3.01$, $p<.05$, $\eta^2=.06$; LI-av-NV<ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV=LI-low-NV, ASD-low-NV =LI-low-NV

YARC (RC)	55	-.78	.77	46	-.21	1.07	22	-1.1	.70	11	-.86	.97	$F(3,130)=6.38$, $p<.001$, $\eta^2=.13$; LI-av-NV>ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV>LI-low-NV, ASD-low-NV = LI-low-NV

Note: SWRT (WA) = Single Word Reading Test word reading accuracy; TOWRE (WE) = Test of Word Reading Efficiency word reading efficiency; TOWRE (NWE) = Test of Word Reading Efficiency nonword reading efficiency; YARC (RC) = York Assessment of Reading for Comprehension reading comprehension

Table 24. Performance on reading measures at across time points

Measure	Time	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
		N	*M*	*SD*	*N*	*M*	*SD*	
SWRT	Time 1	90	-.97	.99	60	-.20	1.09	Main effect of time point: $F(1,147)=.00$, *ns.*, $\eta^2=.07$
								Main effect of cohort: $F(1,147)=18.73$, $p<.001$, $\eta^2=.11$
	Time 2	90	-1.03	.91	60	-.17	1.03	Main effect nonverbal ability: $F(1,147)=1.16$, *ns.*, $\eta^2=.01$
								Time x cohort interaction: $F(1,147)=.50$, *ns.*, $\eta^2=.00$
YARC	Time 1	63	-1	.78	53	-.71	.83	Main effect of time point: $F(1,113)=12.35$, $p<.001$, $\eta^2=.10$ Time 1 > Time 2
								Main effect of cohort: $F(1,113)=3.67$, *ns.*, $\eta^2=.03$
	Time 2	63	-.78	.76	53	-.29	1.08	Main effect nonverbal ability: $F(1,113)=.24$, *ns.*, $\eta^2=.00$
								Time x cohort interaction: $F(1,113)=.88$, *ns.*, $\eta^2=.01$

Note: SWRT = Single Word Reading Test; YARC = York Assessment of Reading for Comprehension

Table 25. Year group effects on reading comprehension at Time 1 and Time 2

Time	Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
			N	M	SD	N	M	SD	
Time 1	SWRT	Year 3	25	-.22	.67	18	-.71	.90	Main effect of year group: $F(2,117)=2.15$, $p<.05$, $\eta^2=.04$; Y3=Y5, Y5=Y7,
		Year 5	18	-1.32	.74	11	-.27	1.06	Y3<Y7
		Year 7	26	-1.15	.80	25	-.09	1.23	Main effect of cohort: $F(1,117)=16.55$, $p<.001$, $\eta^2=.12$; LI<ASD
									Main effect of nonverbal ability: $F(1,117)=9.39$, $p<.01$, $\eta^2=.07$
									Year group x cohort interaction: $F(2,117)=.79$, *ns.*, $\eta^2=.01$
Time 1	TOWRE (WE)	Year 3	25	-.55	.85	18	-.23	1.32	Main effect of year group: $F(2,109)=1.78$, *ns.*, $\eta^2=.03$
		Year 5	18	-.98	.82	11	-.40	.84	Main effect of cohort: $F(1,109)=2.76$, *ns.*, $\eta^2=.03$; LI=ASD
		Year 7	22	-1.01	.87	22	-.46	.93	Main effect of nonverbal ability: $F(1,109)=8.84$, $p<.01$, $\eta^2=.08$
									Year group x cohort interaction: $F(2,109)=.07$, *ns.*, $\eta^2=.00$;
Time 1	TOWRE (NWE)	Year 3	25	-.78	.69	18	-.18	1.25	Main effect of year group: $F(2,108)=1.28$, *ns.*, $\eta^2=.02$
		Year 5	18	-1.14	1.08	11	.58	1.43	Main effect of cohort: $F(1,108)=12.75$, $p<.01$, $\eta^2=.11$; LI<ASD
		Year 7	21	-1.02	1.04	22	-.46	1.17	Main effect of nonverbal ability: $F(1,108)=7.52$, $p<.05$, $\eta^2=.07$
									Year group x cohort interaction: $F(2,108)=2.76$, *ns.*, $\eta^2=.05$
Time 1	YARC	Year 3	25	-.99	.62	17	-.87	.84	Main effect of year group: $F(2,103)=5.7$, $p<.01$, $\eta^2=.10$; Y3=Y5, Y5=Y7,
		Year 5	18	-1.14	.62	11	-.08	1.14	Y3<Y7
		Year 7	16	-.74	.82	23	.02	1.16	Main effect of cohort: $F(1,103)=5.55$, $p<.05$, $\eta^2=.05$; LI<ASD
									Main effect of nonverbal ability: $F(1,103)=7.52$, $p<.05$, $\eta^2=.07$
									Year group x cohort interaction: $F(2,103)=2.09$, *ns.*, $\eta^2=.04$;
Time 2	SWRT	Year 3	25	-1.33	.58	18	-.37	.98	Main effect of year group: $F(2,117)=.29$, *ns.*, $\eta^2=.01$
		Year 5	18	-1.25	.90	12	-.16	1.09	Main effect of cohort: $F(1,117)=29.79$, $p<.001$, $\eta^2=.18$; LI<ASD
		Year 7	26	-1.30	.76	25	-.21	1.17	Main effect of nonverbal ability: $F(1,117)=13.68$, $p<.001$, $\eta^2=.11$
									Year group x cohort interaction: $F(2,117)=.01$, *ns.*, $\eta^2=.00$

Time 2	YARC	Year 3	24	-1.28	.65	18	-.82	1.04	Main effect of year group: $F(2,96)=.51$, *ns.*, $\eta^2=.01$
		Year 5	9	-.94	.87	9	-.74	.66	Main effect of cohort: $F(1,96)=.65$, *ns.*, $\eta^2=.01$
		Year 7	20	-1.18	.63	23	-.67	.82	Main effect of nonverbal ability: $F(1,96)=17.06$, $p<.001$, $\eta^2=.15$
									Year group x cohort interaction: $F(2,96)=.74$, *ns.*, $\eta^2=.02$

Note: SWRT = Single Word Reading Test; TOWRE (WE) = Test of Word Reading Efficiency word reading efficiency; TOWRE (NWE) = Test of Word Reading Efficiency nonword reading efficiency; YARC = York Assessment of Reading for Comprehension

3.4.2. Writing

Table 26. Cohort effects on spelling and writing fluency tasks

Measure	LI-av-NV			ASD-av-NV			LI-low-NV			ASD-low-NV			Analysis (ANOVA) and group comparisons (Bonferroni)
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	
Spelling	68	-.46	1.2	47	-.05	1.39	27	-.87	.82	11	.05	1.49	$F(3,149)=3.13$, $p<.05$, $\eta^2=.06$; LI-av-NV=ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV>LI-low-NV, ASD-low-NV=LI-low-NV
Writing fluency	45	-1.22	.64	42	-.84	1.07	21	-1.57	.69	10	-1.03	.97	$F(3,114)=3.66$, $p<.05$, $\eta^2=.09$; LI-av-NV=ASD-av-NV, LI-av-NV=LI-low-NV, ASD-av-NV=ASD-low-NV, LI-av-NV=ASD-low-NV, ASD-av-NV>LI-low-NV, ASD-low-NV=LI-low-NV

Table 27. Year group effects on spelling and writing fluency tasks

Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
		N	*M*	*SD*	*N*	*M*	*SD*	
Spelling	Year 3	25	-.74	.64	18	.19	1.11	Main effect of year group: $F(2,113)=2.92$, *ns.*, $\eta^2=.05$
	Year 5	18	-.89	.93	11	.39	1.13	Main effect of cohort: $F(1,113)=16.26$, $p<.001$, $\eta^2=.13$; ASD>LI
	Year 7	25	-1.16	.91	23	-.37	1.42	Main effect of nonverbal ability: $F(1,113)=7.2$, $p<.05$, $\eta^2=.06$
								Year group x cohort interaction: $F(2,113)=.58$, *ns.*, $\eta^2=.01$;
Writing fluency	Year 3	22	-1.09	.52	17	-.80	.88	Main effect of year group: $F(2,111)=1.58$, *ns.*, $\eta^2=.03$
	Year 5	18	-1.26	.60	11	-.70	.81	Main effect of cohort: $F(1,113)=3.22$, *ns.*, $\eta^2=.03$
	Year 7	26	-1.58	.77	24	-1.01	1.25	Main effect of nonverbal ability: $F(1,113)=12.03$, $p<.01$, $\eta^2=.10$
								Year group x cohort interaction: $F(2,113)=.08$, *ns.*, $\eta^2=.00$;

Table 28. Cohort effects on the composition task at Time 1 and Time 2

Time	Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons
		N	*M*	*SD*	*N*	*M*	*SD*	(Bonferroni)
Time 1	Words	74	37	21.8	47	55	31.9	Main effect of cohort: $F(1,118=11.65, p<.01, \eta^2=.09$; ASD>LI
								Man effect of nonverbal ability: $F(1,118)=.81, ns., \eta^2=.01$
	Spelling	74	33.5	21.9	47	49.9	29.8	Main effect of cohort: $F(1,118=10.07, p<.01, \eta^2=.08$; ASD>LI
								Man effect of nonverbal ability: $F(1,118)=1.45, ns., \eta^2=.01$
	Sequences	74	27.8	20.4	47	45.2	31.2	Main effect of cohort: $F(1,118=11.36, p<.01, \eta^2=.09$; ASD>LI
								Man effect of nonverbal ability: $F(1,118)=1.69, ns., \eta^2=.01$
Time 2	Words	81	43.1	27.7	46	49.7	25.2	Main effect of cohort: $F(1,124=2, ns., \eta^2=.02$
								Man effect of nonverbal ability: $F(1,124)=.34, ns., \eta^2=.00$
	Spelling	81	38.7	26.6	46	45.8	24.9	Main effect of cohort: $F(1,124=2.32, ns., \eta^2=.02$
								Man effect of nonverbal ability: $F(1,124)=.11, ns., \eta^2=.00$
	Sequences	81	31.6	22	46	42.9	24.9	Main effect of cohort: $F(1,124=6.28, p<.05, \eta^2=.05$; ASD>LI
								Man effect of nonverbal ability: $F(1,124)=.22, ns., \eta^2=.00$

Table 29. Year group effects on the composition task at Time 1 and Time 2

Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
		N	M	SD	N	M	SD	
Time 1								
Words	Year 3	17	29.2	16.2	11	37.9	17.2	Main effect of year group: $F(2,93)=9.98$, $p<.001$, $\eta^2=.18$; Y3=Y5, Y5=Y7,
	Year 5	16	44.7	18.3	10	59	32.8	Y3<Y7
	Year 7	24	49.8	22.1	22	68.8	31.1	Main effect of cohort: $F(1,93)=4.38$, $p<.05$, $\eta^2=.05$; ASD>LI
								Main effect of nonverbal ability: $F(1,93)=5.93$, $p<.05$, $\eta^2=.06$
Spelling	Year 3	17	25.1	14.2	11	32.4	16	Main effect of year group: $F(2,93)=11.53$, $p<.001$, $\eta^2=.20$;
	Year 5	16	39.9	17.6	10	56.5	31	Y3<Y5, Y5=Y7, Y3<Y7
	Year 7	24	46.4	22.2	22	62.4	28	Main effect of cohort: $F(1,93)=4.28$, $p<.05$, $\eta^2=.04$; ASD>LI
								Main effect of nonverbal ability: $F(1,93)=7.74$, $p<.01$, $\eta^2=.08$
Sequences	Year 3	17	20.4	13.3	11	26.5	17.7	Main effect of year group: $F(2,93)=10.4$, $p<.001$, $\eta^2=.2$; Y3<Y5, Y5=Y7,
	Year 5	16	34.9	18.5	10	53.4	29.6	Y3<Y7
	Year 7	24	39.7	19.9	22	57.1	31.9	Main effect of cohort: $F(1,93)=4.62$, $p<.05$, $\eta^2=.05$; ASD>LI
								Main effect of nonverbal ability: $F(1,93)=7.29$, $p<.01$, $\eta^2=.07$
Time 2								
Words	Year 3	20	31.4	15.9	10	44.2	19.5	Main effect of year group: $F(2,95)=6.94$, $p<.01$, $\eta^2=.13$; Y3<Y5, Y5=Y7,
	Year 5	16	53.6	18.7	9	58.3	26.2	Y3<Y7
	Year 7	25	62.1	32.5	22	55	24.3	Main effect of cohort: $F(1,95)=.81$, $ns.$, $\eta^2=.00$
								Main effect of nonverbal ability: $F(1,93)=1.35$, $ns.$, $\eta^2=.01$
Spelling	Year 3	20	27	14.5	10	41	19	Main effect of year group: $F(2,95)=7.11$, $p<.01$, $\eta^2=.13$; Y3<Y5, Y5=Y7,
	Year 5	16	47.6	18.4	9	55.9	25.5	Y3<Y7
	Year 7	25	58	30.7	22	50.3	24.6	Main effect of cohort: $F(1,95)=.28$ $ns.$, $\eta^2=.00$
								Main effect of nonverbal ability: $F(1,93)=1.78$, $ns.$, $\eta^2=.02$

Sequences	Year 3	20	22.7	13.2	10	37.9	18.1	Main effect of year group: $F(2,95)=6.61$, $p<.01$, $\eta^2=.12$;
	Year 5	16	38.8	17.5	9	52.1	26.9	Y3=Y5, Y5=Y7, Y3<Y7
	Year 7	25	46.6	24	22	47.7	23.7	Main effect of cohort: $F(1,95)=2.22$, *ns.*, $\eta^2=.02$
								Main effect of nonverbal ability: $F(1,95)=4.32$, *ns.,* $\eta^2=.04$

Table 30. Time point effects on the composition task

Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
	N	M	SD	N	M	SD	
Time 1 Words	65	38.7	21.5	40	56.6	33.2	Main effect of time: $F(1,102)=.29$ *ns.*, $\eta^2=.00$
Time 2 Words	65	47.2	28.2	40	52	24.9	Main effect of cohort: $F(1,102)=5.57$ $p<.05$, $\eta^2=.05$; ASD>LI
							Main effect of nonverbal ability: $F(1,102)=.03$ *ns.,* $\eta^2=.00$
							Time x cohort interaction: $F(1,102)=4.68$ $p<.05$, $\eta^2=.04$;
							1) LI: Time 1<Time 2, ASD: Time 1=Time 2
							2) Time 1: ASD>LI, Time 2: ASD=LI
Time 1 Spelling	65	35.3	21.3	40	51.7	30.5	Main effect of time: $F(1,102)=.51$ *ns.* $\eta^2=.01$
Time 2 Spelling	65	42.6	27.2	40	48.9	24.2	Main effect of cohort: $F(1,102)=5.48$ $p<.05$, $\eta^2=.05$; ASD>LI
							Main effect of nonverbal ability: $F(1,102)=.02$ *ns.,* $\eta^2=.00$
							Time x cohort interaction: $F(1,102)=3.02$ *ns.,* $\eta^2=.03$
Time 1 Sequences	65	29.2	19.7	40	48.1	31.4	Main effect of time: $F(1,102)=.36$ *ns.,* $\eta^2=.00$
Time 2 Sequences	65	34.9	22.4	40	45.4	24.5	Main effect of cohort: $F(1,102)=9.56$ $p<.01$, $\eta^2=.09$; ASD>LI
							Main effect of nonverbal ability: $F(1,102)=.36$ *ns.,* $\eta^2=.00$
							Time x cohort interaction: $F(1,102)=3.22$ *ns.,* $\eta^2=.03$

3.4.3. Novel word learning

Table 31. Performance on a word learning task

Measure	Trial	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
		N	M	SD	N	M	SD	
	Trial 1	44	.08	.17	39	.12	.13	Main effect of cohort: $F(1,80)=1.13$, $ns.$, $\eta^2=.01$
	Trial 2	44	.21	.23	39	.25	.18	Main effect nonverbal ability: $F(1,80)=.62$, $ns.$, $\eta^2=.01$
	Trial 3	44	.33	.27	39	.42	.23	Trial x cohort interaction: $F(1,80)=1.13$, $ns.$, $\eta^2=.01$

3.5. What was the profile of autism behavioural characteristics of the pupils?

Table 32. Cohort effects on the Social Communication Questionnaire (SCQ)

Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability)
	N	M	SD	N	M	SD	
Social	38	3.37	3.29	37	7.84	3.89	Main effect of cohort: $F(1,72)=32.33$, $p<.001$, $\eta^2=.31$;ASD>LI
							Main effect of nonverbal ability: $F(1,72)=3.49$, $ns.$, $\eta^2=.05$
Communication	37	5	2.78	33	6.55	2.61	Main effect of cohort: $F(1,67)=9.06$, $p<.01$, $\eta^2=.12$;ASD>LI
							Main effect of nonverbal ability: $F(1,67)=6.49$, $p<.05$, $\eta^2=.09$
Repetitive	38	2.9	2.75	33	4.67	2.15	Main effect of cohort: $F(1,68)=10.29$, $p<.01$, $\eta^2=.13$;ASD>LI
							Main effect of nonverbal ability: $F(1,68)=1.66$, $ns.$, $\eta^2=.02$
Total score	32	11.5	6.1	31	19.9	8.16	Main effect of cohort: $F(1,60)=28.73$, $p<.001$, $\eta^2=.32$;ASD>LI
							Main effect of nonverbal ability: $F(1,60)=8.1$, $p<.01$, $\eta^2=.12$

Table 33. Year group effects on the Social Communication Questionnaire (SCQ)

Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons
		N	M	SD	N	M	SD	
Social	Younger	23	2.61	2.66	10	7.8	4.64	Main effect of year group: $F(1,70)=1.14$, $ns.$, $\eta^2=.02$
	Older	15	4.53	3.89	27	7.85	3.68	effect of cohort: $F(1,70)=24.78$, $p<.001$, $\eta^2=.26$; ASD>LI
								Main effect of nonverbal ability: $F(1,70)=2.43$, $ns.$, $\eta^2=.03$
								Year group x cohort interaction: $F(1,70)=.35$, $ns.$, $\eta^2=.01$
Communication	Younger	21	3.95	2.09	10	6.8	3.05	Main effect of year group: $F(1,65)=2.82$, $ns.$, $\eta^2=.04$
	Older	16	6.38	3.03	23	6.44	2.47	Main effect of cohort: $F(1,65)=6.94$, $p<.05$, $\eta^2=.10$; ASD>LI
								Main effect of nonverbal ability: $F(1,65)=4.29$, $p<.05$, $\eta^2=.06$
								Year group x cohort interaction: $F(1,65)=2.3$, $ns.$, $\eta^2=.03$;
Repetitive	Younger	21	3.33	3.12	9	5.33	2	Main effect of year group: $F(1,66)=2.5$, $ns.$, $\eta^2=.04$
	Older	17	2.35	2.18	24	4.42	2.19	Main effect of cohort: $F(1,66)=11.91$, $p<.01$, $\eta^2=.15$; ASD>LI
								Main effect of nonverbal ability: $F(1,66)=2.21$, $ns.$, $\eta^2=.03$
								Year group x cohort interaction: $F(1,66)=.15$, $ns.$, $\eta^2=.00$
Total score	Younger	18	10.61	4.9	9	20.89	9.87	Main effect of year group: $F(1,58)=.00$, $ns.$, $\eta^2=.00$
	Older	14	12.64	7.4	22	19.5	7.58	Main effect of cohort: $F(1,58)=25.23$, $p<.001$, $\eta^2=.30$; ASD>LI
								Main effect of nonverbal ability: $F(1,58)=6.93$, $p<.05$, $\eta^2=.11$
								Year group x cohort interaction: $F(1,58)=.03$, $ns.$, $\eta^2=.00$

Table 34. Cohort effect of teacher rated scores on the Social Responsiveness Scale (SRS) at Time 2

Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability)
	N	*M*	*SD*	*N*	*M*	*SD*	
SA	58	.37	.78	41	.9	1.18	Main effect of cohort: $F(1,96)=7.88$, $p<.01$, $\eta^2=.08$; ASD>LI
							Main effect of nonverbal ability: $F(1,96)=1.71$, *ns.*, $\eta^2=.02$
Scog	58	.73	1	41	1.17	1.27	Main effect of cohort: $F(1,96)=4.03$, $p<.05$, $\eta^2=.04$;ASD>LI
							Main effect of nonverbal ability: $F(1,96)=1.36$, *ns.*, $\eta^2=.01$
Scom	58	.47	1.07	41	.95	1.13	Main effect of cohort: $F(1,96)=5.16$, $p<.05$, $\eta^2=.05$; ASD>LI
							Main effect of nonverbal ability: $F(1,96)=1.6$, *ns.*, $\eta^2=.02$
SM	58	.35	1	41	.86	1.15	Main effect of cohort: $F(1,96)=6.12$, $p<.05$, $\eta^2=.06$;ASD>LI
							Main effect of nonverbal ability: $F(1,96)=3$, *ns.*, $\eta^2=.06$
AM	58	.34	.93	41	1.12	1.41	Main effect of cohort: $F(1,96)=11.1$, $p<.01$, $\eta^2=.10$; ASD>LI
							Main effect of nonverbal ability: $F(1,96)=.62$, *ns.*, $\eta^2=.01$
Total score	58	.47	.99	41	1.09	1.22	Main effect of cohort: $F(1,96)=8.34$, $p<.01$, $\eta^2=.08$; ASD>LI
							Main effect of nonverbal ability: $F(1,96)=1.61$, *ns.*,$\eta^2=.02$

Note: SA = social awareness; Scog = social cognition; Scom = social communication; SM = social motivation; AM = autistic mannerisms.

Table 35. Cohort effect of teacher rated scores on the Social Responsiveness Scale (SRS) at Time 1 and Time 2

Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability)
	N	M	SD	N	M	SD	
Time 1 SA	53	.62	1.15	38	1.43	1.28	Main effect of time: $F(1,88)=10.17$, $p<.01$, $\eta^2=.10$; Time 1>Time2
							Main effect of cohort: $F(1,88)=16.23$, $p<.001$, $\eta^2=.16$; ASD>LI
Time 2 SA	53	.27	.73	38	.97	1.19	Main effect of nonverbal ability: $F(1,88)=.48$, *ns.*, $\eta^2=.01$
							Time x cohort: $F(1,88)=.12$, *ns.*, $\eta^2=.00$
Time 1 Scog	53	.72	1.05	38	1.78	1.29	Main effect of time: $F(1,88)=5.09$, $p<.05$, $\eta^2=.06$; Time 1>Time2
							Main effect of cohort: $F(1,88)=17.84$, $p<.001$, $\eta^2=.17$; ASD>LI
Time 2 Scog	53	.64	.95	38	1.27	1.25	Main effect of nonverbal ability: $F(1,88)=1.88$, *ns*, $\eta^2=.02$
							Time x cohort: $F(1,88)=3.02$, *ns.*, $\eta^2=.03$
Time 1 Scom	53	.8	1.13	38	1.53	1.09	Main effect of time: $F(1,88)=13.33$, $p<.001$, $\eta^2=.13$; Time 1>Time2
							Main effect of cohort: $F(1,88)=11.62$, $p<.01$, $\eta^2=.12$; ASD>LI
Time 2 Scom	53	.41	1.07	38	1.04	1.12	Main effect of nonverbal ability: $F(1,88)=.9$, *ns.*, $\eta^2=.01$
							Time x cohort: $F(1,88)=.15$, ns, $\eta^2=.00$
Time 1 SM	53	.52	.94	38	1.27	1.18	Main effect of time: $F(1,88)=4.09$, $p<.05$, $\eta^2=.04$; Time 1>Time2
							Main effect of cohort: $F(1,88)=15.56$, $p<.001$, $\eta^2=.15$; ASD>LI
Time 2 SM	53	.3	.99	38	.92	1.17	Main effect of nonverbal ability: $F(1,88)=6.09$, $p<.05$, $\eta^2=.07$
							Time x cohort: $F(1,88)=.19$, *ns.*, $\eta^2=.00$
Time 1 AM	53	.51	1.05	38	1.69	1.31	Main effect of time: $F(1,88)=7.1$, $p<.01$, $\eta^2=.08$; Time 1>Time2
							Main effect of cohort: $F(1,88)=24.88$, $p<.001$, $\eta^2=.22$; ASD>LI
Time 2 AM	53	.29	.9	38	1.2	1.42	Main effect of nonverbal ability: $F(1,88)=.97$, *ns.*, $\eta^2=.01$
							Time x cohort: $F(1,88)=.00$, *ns.*, $\eta^2=.00$

Time 1 Total score	53	.71	1.03	38	1.68	1.21	Main effect of time: $F(1,88)=11.98$, $p<.01$, $\eta^2=.12$; Time 1>Time2
							Main effect of cohort: $F(1,88)=19.04$, $p<.001$, $\eta^2=.18$; ASD>LI
Time 2 Total score	53	.42	.95	38	1.18	1.22	Main effect of nonverbal ability: $F(1,88)=1.65$, $ns.$, $\eta^2=.02$
							Time x cohort: $F(1,88)=.85$, $ns.$, $\eta^2=.01$

Note: SA = social awareness; Scog = social cognition; Scom = communication; SM = social motivation; AM = autistic mannerisms.

Table 36. Cohort effect of parent rated scores on the Social Responsiveness Scale (SRS) at Time 1

Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability)
	N	*M*	*SD*	*N*	*M*	*SD*	
SA	42	1.06	1.43	40	1.91	1.36	Main effect of cohort: $F(1,79)=7.41$, $p<.01$, $\eta^2=.09$; ASD>LI
							Main effect of nonverbal ability: $F(1,79)=.5$, *ns.*, $\eta^2=.00$
Scog	42	2.08	1.81	40	2.65	1.51	Main effect of cohort: $F(1,79)=2.72$, *ns.*, $\eta^2=.03$
							Main effect of nonverbal ability: $F(1,79)=.74$, *ns.*, $\eta^2=.01$
Scom	42	1.96	1.61	40	2.61	1.35	Main effect of cohort: $F(1,79)=4.25$, $p<.05$, $\eta^2=.05$; ASD>LI
							Main effect of nonverbal ability: $F(1,79)=.48$, *ns.*, $\eta^2=.01$
SM	42	1.52	1.69	40	2.5	1.46	Main effect of cohort: $F(1,79)=9.08$, $p<.01$, $\eta^2=.01$; ASD>LI
							Main effect of nonverbal ability: $F(1,79)=1.99$, *ns.*, $\eta^2=.03$
AM	42	2.22	2.2	40	3.21	1.83	Main effect of cohort: $F(1,79)=4.93$, $p<.05$, $\eta^2=.06$; ASD>LI
							Main effect of nonverbal ability: $F(1,79)=.11$, *ns.*, $\eta^2=.00$
Total score	42	2.12	1.8	40	3.03	1.5	Main effect of cohort: $F(1,79)=6.66$, $p<.05$, $\eta^2=.08$; ASD>LI
							Main effect of nonverbal ability: $F(1,79)=.63$, *ns.*, $\eta^2=.09$

Note: SA = social awareness; Scog = social cognition; Scom = communication; SM = social motivation; AM = autistic mannerisms

Table 37. Parent vs. teacher t-tests on SRS subscales

Measure	Teacher			Parent			Analysis (t-tests)
	N	*M*	*SD*	*N*	*M*	*SD*	
SA	53	.4	.97	53	1.6	1.43	$t(52) = -6.05$, $p<.05$, $d=-0.861$
Scog	53	.65	1.08	53	2.54	1.81	$t(52) = -7.73$, $p<.05$, $d=-1.128$
Scom	53	.47	1.12	53	2.38	1.68	$t(52) = -8.62$, $p<.01$, $d=-1.235$
SM	53	.38	1.03	53	2.17	1.76	$t(52) = -7.53$, $p<.05$, $d=-1.098$
AM	53	.49	1.19	53	2.69	2.18	$t(52) = -7.85$, $p<.01$, $d=-1.184$
Total score	53	.49	1.13	53	2.69	1.87	$t(52) = -9.16$, $p<.01$, $d=-1.298$

Note: SA = social awareness; Scog = social cognition; Scom = communication; SM = social motivation; AM = autistic mannerisms

3.6. What do teachers report about pupils' behaviour?

Table 38. Strengths and Difficulties Questionnaire (SDQ) at Time 1 and Time 2

Time	Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability)
		N	*M*	*SD*	*N*	*M*	*SD*	
Time 1	Emotional	64	1	1.45	42	.99	1.43	Main effect of cohort: $F(1,103)=.00$, *ns.*, $\eta^2=.00$
								Main effect of nonverbal ability: $F(1,130)=.05$, *ns.*, $\eta^2=.00$
	Conduct	63	.51	1.45	41	.4	1.17	Main effect of cohort: $F(1,101)=.15$, $p>.05$, $\eta^2=.00$; ASD=LI
								Main effect of nonverbal ability: $F(1,101)=.00$, ns., $\eta^2=.00$
	Hyperactivity	64	.65	1.08	42	.67	.84	Main effect of cohort: $F(1,103)=.11$, *ns.*, $\eta^2=.00$; ASD=LI
								Main effect of nonverbal ability: $F(1,103)=1.67$, *ns.*, $\eta^2=.02$
	Peer problems	63	.53	1.36	42	1.56	1.38	Main effect of cohort: $F(1,102)=14.81$, $p<.001$, $\eta^2=.13$; ASD>LI
								Main effect of nonverbal ability: $F(1,102)=.55$, *ns.*, $\eta^2=.01$
	Prosocial	63	-.24	1.27	41	-.73	1.06	Main effect of cohort: $F(1,101)=4.16$, $p<.05$, $\eta^2=.04$; ASD<LI
								Main effect of nonverbal ability: $F(1,101)=.02$, *ns.*, $\eta^2=.00$
	Total problems	62	.91	1.24	41	1.15	1.15	Main effect of cohort: $F(1,100)=1.27$, *ns.*, $\eta^2=.01$; ASD=LI
								Main effect of nonverbal ability: $F(1,100)=.71$, *ns.*, $\eta^2=.01$
Time 2	Emotional	61	.69	1.36	42	1.15	1.28	Main effect of cohort: $F(1,100)=2.77$, *ns.*, $\eta^2=.03$; ASD=LI
								Main effect of nonverbal ability: $F(1,100)=.11$, *ns.*, $\eta^2=.00$
	Conduct	61	.31	1.14	42	.32	1.24	Main effect of cohort: $F(1,100)=.00$, *ns.*, $\eta^2=.00$; ASD=LI
								Main effect of nonverbal ability: $F(1,100)=.02$, *ns.*, $\eta^2=.00$
	Hyperactivity	61	.92	.94	42	.64	1.1	Main effect of cohort: $F(1,100)=1.87$, *ns.*, $\eta^2=.02$; ASD=LI
								Main effect of nonverbal ability: $F(1,100)=.05$, *ns.*, $\eta^2=.00$

Peer problems	60	.43	1.27	42	1.3	1.41	Main effect of cohort: $F(1,99)=10.39$, $p<.01$, $\eta^2=.10$ ASD>LI
							Main effect of nonverbal ability: $F(1,99)=.05$, *ns.*, $\eta^2=.00$
Prosocial	60	-.4	1.2	41	-.99	1.32	Main effect of cohort: $F(1,98)=5.54$, $p<.05$, $\eta^2=.05$; ASD<LI
							Main effect of nonverbal ability: $F(1,98)=.19$, *ns.*, $\eta^2=.00$
Total score	60	.86	1.02	42	1.1	1.09	Main effect of cohort: $F(1,99)=1.17$, *ns.*, $\eta^2=.01$; ASD=LI
							Main effect of nonverbal ability: $F(1,99)=.04$, *ns.*, $\eta^2=.00$

Table 39. Comparing SDQ scores at Time 1 and Time 2

Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability)
	N	*M*	*SD*	*N*	*M*	*SD*	
Time 1 Emotional	44	.94	1.35	30	.97	1.44	Main effect of time: $F(1,71)=1.4$, *ns.*, $\eta^2=.02$
							Main effect of cohort: $F(1,71)=.48$, *ns.*, $\eta^2=.01$
Time 2 Emotional							Main effect of nonverbal ability: $F(1,71)=1.33$, *ns.*, $\eta^2=.02$
	44	.93	1.46	30	1.25	1.39	Time x cohort: $F(1,71)=.48$, *ns.*, $\eta^2=.01$
Time 1 Conduct	43	.6	1.43	29	.29	1.08	Main effect of time: $F(1,69)=1.16$, *ns.*, $\eta^2=.02$
							Main effect of cohort: $F(1,69)=1.11$, *ns.*, $\eta^2=.02$
Time 2 Conduct	43	.44	1.23	29	.21	1.22	Main effect of nonverbal ability: $F(1,69)=.23$, *ns.*, $\eta^2=.00$
							Time x cohort: $F(1,69)=1.00$, *ns.,* $\eta^2=.00$
Time 1 Hyperactivity	44	.74	1.05	30	.64	.86	Main effect of time: $F(1,71)=.48$, *ns.*, $\eta^2=.01$
							Main effect of cohort: $F(1,71)=1.19$, *ns.*, $\eta^2=.02$
Time 2 Hyperactivity	44	.92	.93	30	.56	1.23	Main effect of nonverbal ability: $F(1,71)=.00$, *ns.*, $\eta^2=.00$
							Time x cohort: $F(1,71)=1.29$, *ns.*, $\eta^2=.02$
Time 1 Peer problems	43	.4	1.24	30	1.65	1.33	Main effect of time: $F(1,70)=.08$, *ns.*, $\eta^2=.00$;Time 1>Time2
							Main effect of cohort: $F(1,70)=13.81$, $p<.001$, $\eta^2=.17$; ASD>LI
Time 2 Peer problems	43	.55	1.32	30	1.36	1.4	Main effect of nonverbal ability: $F(1,70)=.35$, *ns.*, $\eta^2=.01$
							Time x cohort: $F(1,70)=2.39$, *ns.*, $\eta^2=.03$
							1) LI: Time 1=Time 2, ASD: Time 1=Time 2
							2) Time 1: ASD>LI, Time 2: ASD>LI
Time 1 Prosocial	44	-.35	1.37	29	-.75	1.02	Main effect of time: $F(1,70)=1.51$, *ns*, $\eta^2=.02$
							Main effect of cohort: $F(1,70)=2.81$, $p<.05$, $\eta^2=.04$; ASD<LI

Time 2 Prosocial	44	-.54	1.22	29	-1.06	1.38	Main effect of nonverbal ability: $F(1,70)=.02$, *ns.*, $\eta^2=.00$
							Time x cohort: $F(1,70)=.23$, *ns.*, $\eta^2=.00$
Time 1 Total problems	42	.93	1.19	29	1.1	1.05	Main effect of time: $F(1,68)=.63$, *ns.*, $\eta^2=.01$
							Main effect of cohort: $F(1,68)=.09$, *ns.*, $\eta^2=.00$
Time 2 Total problems	42	1.07	1	29	1.04	1.22	Main effect of nonverbal ability: $F(1,68)=.2$, *ns.*, $\eta^2=.00$

Table 40. Year group effects on SDQ at Time 1 and Time 2

Time	Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons
			N	M	SD	N	M	SD	
Time 1	Emotional	Younger	35	.77	1.25	14	1.2	1.26	Main effect of year group: $F(1,101)=.08$, $ns.$, $\eta^2=.00$
		Older	29	1.26	1.65	28	.88	1.52	Main effect of cohort: $F(1,101)=.01$, $ns.$, $\eta^2=.00$
									Main effect of nonverbal ability: $F(1,101)=.00$, $ns.$, $\eta^2=.00$
									Year group x cohort interaction: $F(1,101)=1.79$, ns, $\eta^2=.02$;
	Conduct	Younger	34	.44	1.25	14	.43	.93	Main effect of year group: $F(1,99)=.03$, $ns.$, $\eta^2=.00$
		Older	29	.59	1.67	27	.38	1.3	Main effect of cohort: $F(1,99)=.14$, $ns.$, $\eta^2=.00$
									Main effect of nonverbal ability: $F(1,99)=.00$, $ns.$, $\eta^2=.00$
									Year group x cohort interaction: $F(1,99)=.12$, $ns.$, $\eta^2=.00$;
	Hyperactivity	Younger	35	.66	1.08	14	.84	.68	Main effect of year group: $F(1,101)=.45$, $ns.$, $\eta^2=.00$
		Older	29	.62	1.1	28	.58	.92	Main effect of cohort: $F(1,101)=.25$, $ns.$, $\eta^2=.00$
									Main effect of nonverbal ability: $F(1,101)=1.5$, $ns.$, $\eta^2=.02$
									Year group x cohort interaction: $F(1,101)=.10$ $ns.$, $\eta^2=.00$;
	Peer problems	Younger	34	.15	1.08	14	1.96	1.22	Main effect of year group: $F(1,100)=.21$, $ns.$, $\eta^2=.00$
		Older	29	.99	1.52	28	1.37	1.44	Main effect of cohort: $F(1,100)=15.85$, $p<.001$, $\eta^2=.14$;ASD>LI
									Main effect of nonverbal ability: $F(1,100)=.12$, $ns.$, $\eta^2=.00$
									Year group x cohort interaction: $F(1,100)=6.3$, $p<.01$, $\eta^2=.06$;
									1) LI: younger<older, for ASD: younger=older
									2) younger: LI<ASD, older: LI=ASD
	Prosocial	Younger	35	.00	1.09	14	-1.27	.91	Main effect of year group: $F(1,99)=.34$, $ns.$, $\eta^2=.00$; younger=older
		Older	28	-.54	1.44	27	-.46	1.04	Main effect of cohort: $F(1,99)=5.62$, $p<.05$, $\eta^2=.05$;ASD<LI

			N	Mean	SD	N	Mean	SD	
									Main effect of nonverbal ability: $F(1,99)=.08$, *ns.*, $\eta^2=.00$
									Year group x cohort interaction: $F(1,99)=7.65$, *p*<.01, $\eta^2=.07$;
									1) LI: younger=older, for ASD: younger<older
									2) younger: LI<ASD, older: LI=ASD
	Total problems	Younger	33	.73	1.19	14	1.46	.76	Main effect of year group: $F(1,98)=.03$, *ns.*, $\eta^2=.00$
		Older	29	1.11	1.29	27	.98	1.29	Main effect of cohort: $F(1,98)=1.67$, *ns.*, $\eta^2=.02$
									Main effect of nonverbal ability: $F(1,98)=.36$, *ns.*, $\eta^2=.00$
									Year group x cohort interaction: $F(1,98)=2.62$, *ns.*, $\eta^2=.03$;
Time 2	Emotional	Younger	36	.42	1.28	18	1.29	1.03	Main effect of year group: $F(1,98)=.79$, *ns.*, $\eta^2=.01$
		Older	25	1.08	1.4	24	1.05	1.45	Main effect of cohort: $F(1,98)=2.07$, *ns.*, $\eta^2=.02$
									Main effect of nonverbal ability: $F(1,98)=.63$, *ns.*, $\eta^2=.01$
									Year group x cohort interaction: $F(1,98)=3.18$, ns., $\eta^2=.03$;
	Conduct	Younger	36	.29	1.2	18	.42	1.3	Main effect of year group: $F(1,98)=.1$, *ns.*, $\eta^2=.00$
		Older	25	.33	1.07	24	.24	1.2	Main effect of cohort: $F(1,98)=.01$, *ns.*, $\eta^2=.00$
									Main effect of nonverbal ability: $F(1,98)=.01$, *ns.*, $\eta^2=.00$
									Year group x cohort interaction: $F(1,98)=.2$, *ns.*, $\eta^2=.00$;
	Hyperactivity	Younger	36	.96	.96	18	.61	.7	Main effect of year group: $F(1,98)=.03$, *ns.*, $\eta^2=.00$; younger=older
		Older	25	.86	.92	24	.65	1.33	Main effect of cohort: $F(1,98)=1.66$, *ns.*, $\eta^2=.02$;ASD=LI
									Main effect of nonverbal ability: $F(1,98)=.1$, *ns.*, $\eta^2=.00$
									Year group x cohort interaction: $F(1,98)=.17$, *ns.*, $\eta^2=.00$;
	Peer problems	Younger	35	.22	1.2	18	1.15	1.28	Main effect of year group: $F(1,97)=2.19$, *ns.*, $\eta^2=.02$
		Older	25	.72	1.32	24	1.42	1.52	Main effect of cohort: $F(1,97)=8.52$, *p*<.01, $\eta^2=.08$; ASD>LI
									Main effect of nonverbal ability: $F(1,97)=.28$, *ns.*, $\eta^2=.00$

		N	M	SD	N	M	SD	
								Year group x cohort interaction: $F(1,97)=.25$, *ns.,* $\eta^2=.00$;
Prosocial	Younger	35	-.25	1.04	18	-.73	1.14	Main effect of year group: $F(1,96)=2.6$, *ns.,* $\eta^2=.03$
	Older	25	-.62	1.38	23	-1.2	1.44	Main effect of cohort: $F(1,96)=4.33$, *p<.05*, $\eta^2=.04$; ASD<LI
								Main effect of nonverbal ability: $F(1,96)=.05$, *ns.,* $\eta^2=.00$
								Year group x cohort interaction: $F(1,96)=.05$, *ns.,* $\eta^2=.00$;
Total problems	Younger	35	.76	1.02	18	1.14	.9	Main effect of year group: $F(1,97)=.19$, *ns.,* $\eta^2=.00$
	Older	25	1.01	1.03	24	1.07	1.24	Main effect of cohort: $F(1,97)=.92$, *ns.,* $\eta^2=.01$
								Main effect of nonverbal ability: $F(1,97)=.16$, *ns.,* $\eta^2=.00$
								Year group x cohort interaction: $F(1,97)=.64$, *ns.,* $\eta^2=.01$;

3.7. What do pupils report about their emotional and social well-being?

Table 41. Cohort effects on the KIDSCREEN at Time 1

Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability)
	N	*M*	*SD*	*N*	*M*	*SD*	
PH	65	-.03	.88	51	-.39	.94	Main effect of cohort: $F(1,113)=2.9$, *ns.*, $\eta^2=.03$
							Main effect of nonverbal ability: $F(1,113)=1.24$, *ns.*, $\eta^2=.01$
PW	65	.16	.81	51	-.38	1.03	Main effect of cohort: $F(1,113)=6.18$, $p<.05$, $\eta^2=.05$;ASD<LI
							Main effect of nonverbal ability: $F(1,113)=2.9$, *ns.*, $\eta^2=.03$
ME	65	-1.09	1.59	51	-1.27	1.44	Main effect of cohort: $F(1,113)=0.3$, *ns.*, $\eta^2=.00$
							Main effect of nonverbal ability: $F(1,113)=6.99$, $p<.01$, $\eta^2=.06$
SP	65	-.00	1.17	51	-.47	1.07	Main effect of cohort: $F(1,113)=1.38$, *ns.*, $\eta^2=.01$
							Main effect of nonverbal ability: $F(1,113)=10.3$, $p<.01$, $\eta^2=.08$
AU	65	.25	1.05	51	-.64	.84	Main effect of cohort: $F(1,113)=18.99$, $p<.001$, $\eta^2=.14$; ASD<LI
							Main effect of nonverbal ability: $F(1,113)=1.39$, *ns.*, $\eta^2=.01$
PA	64	.2	.94	51	-.69	.87	Main effect of cohort: $F(1,112)=20.08$, $p<.001$, $\eta^2=.15$; ASD<LI
							Main effect of nonverbal ability: $F(1,112)=2.38$, *ns.*, $\eta^2=.02$
FI	64	-.17	.97	47	-.8	1.09	Main effect of cohort: $F(1,108)=9.65$, $p<.01$, $\eta^2=.08$;ASD<LI
							Main effect of nonverbal ability: $F(1,108)=.03$, *ns.*, $\eta^2=.00$
PE	63	.33	1.22	50	-.54	1.16	Main effect of cohort: $F(1,110)=13.39$, $p<.001$, $\eta^2=.11$;ASD<LI
							Main effect of nonverbal ability: $F(1,110)=.01$, *ns.*, $\eta^2=.00$
SC	63	.41	1.14	51	-.19	.99	Main effect of cohort: $F(1,111)=7.74$, $p<.01$, $\eta^2=.07$;ASD<LI
							Main effect of nonverbal ability: $F(1,111)=.03$, *ns.*, $\eta^2=.00$

BU	63	-1.42	1.74	50	-1.63	1.54	Main effect of cohort: $F(1,110)=.09$, *ns.*, $\eta^2=.00$;ASD=LI
							Main effect of nonverbal ability: $F(1,110)=1.32$, *ns.*, $\eta^2=.01$

Note: PH= physical well-being; PW= psychological well-being; ME= moods and emotions; SP= self-perception; AU = autonomy;PA = parent relations and home life; FI = financial resources; PE = social support and peers; SC= school environment; BU = social acceptance (bullying)

Table 42. Cohort effects on the KIDSCREEN at Time 2

Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability)
	N	M	SD	N	M	SD	
PH	66	-.1	1.01	51	-.29	.87	Main effect of cohort: $F(1,114)=.64$, *ns.*, $\eta^2=.01$ Main effect of nonverbal ability: $F(1,114)=.93$, *ns.*, $\eta^2=.01$
PW	67	.05	1.01	50	-.41	.84	Main effect of cohort: $F(1,114)=4.22$, $p<.05$, $\eta^2=.04$;ASD<LI Main effect of nonverbal ability: $F(1,114)=2.74$, *ns.*, $\eta^2=.02$
ME	67	-.06	1.13	51	-.31	.87	Main effect of cohort: $F(1,115)=1.01$, *ns.*, $\eta^2=.01$ Main effect of nonverbal ability: $F(1,115)=1.05$, *ns.*, $\eta^2=.01$
SP	67	.25	1.16	51	.09	.94	Main effect of cohort: $F(1,115)=.1$, *ns.*, $\eta^2=.00$ Main effect of nonverbal ability: $F(1,115)=3.02$, *ns.*, $\eta^2=.03$
AU	67	-.07	1	51	-.41	1.19	Main effect of cohort: $F(1,115)=1.25$, *ns.*, $\eta^2=.01$ Main effect of nonverbal ability: $F(1,115)=4.59$, $p<.05$, $\eta^2=.04$
PA	67	.21	.96	50	-.44	.89	Main effect of cohort: $F(1,114)=11.26$, $p<.01$, $\eta^2=.09$;ASD<LI Main effect of nonverbal ability: $F(1,114)=1$, *ns.*, $\eta^2=.01$
FI	67	-.37	1.03	48	-.76	1.14	Main effect of cohort: $F(1,112)=3.69$, *ns.*, $\eta^2=.03$ Main effect of nonverbal ability: $F(1,112)=.08$, *ns.*, $\eta^2=.00$
PE	67	.08	1.13	51	-.58	1.11	Main effect of cohort: $F(1,115)=5.66$, $p<.05$, $\eta^2=.05$ Main effect of nonverbal ability: $F(1,115)=8.37$, $p<.01$, $\eta^2=.07$
SC	67	.45	1.19	51	-.09	1.22	Main effect of cohort: $F(1,115)=5.32$, $p<.05$, $\eta^2=.04$;ASD<LI Main effect of nonverbal ability: $F(1,115)=.00$, *ns.*, $\eta^2=.00$
BU	67	-.38	1.34	51	-.5	1.21	Main effect of cohort: $F(1,115)=.41$, *ns.*, $\eta^2=.00$ Main effect of nonverbal ability: $F(1,115)=.39$, *ns.*, $\eta^2=.00$

Note: PH= physical well-being; PW= psychological well-being; ME= moods and emotions; SP= self-perception; AU = autonomy;PA = parent relations and home life; FI = financial resources; PE = social support and peers; SC= school environment; BU = social acceptance (bullying)

Table 43. Time effects of KIDSCREEN at Time 1 and Time 2

Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons (Bonferroni)
	N	M	SD	N	M	SD	
Time 1 PH	59	.01	.87	45	-.34	.95	Main effect of time: $F(1,101)=.02$, *ns.*, $\eta^2=.00$
							Main effect of cohort: $F(1,101)=3.29$, *ns.*, $\eta^2=.03$
Time 2 PH	59	-.01	1.02	45	-.32	.87	Main effect of nonverbal ability: $F(1,101)=.63$, *ns.*, $\eta^2=.01$
							Time x cohort: $F(1,101)=.00$, *ns.*, $\eta^2=.00$
Time 1 PW	60	.15	.83	44	-.45	1.01	Main effect of time: $F(1,101)=.01$, *ns.*, $\eta^2=.00$
							Main effect of cohort: $F(1,101)=10.61$, $p<.01$, $\eta^2=.10$ ASD<LI
Time 2 PW	60	.1	1.01	44	-.45	.81	Main effect of nonverbal ability: $F(1,101)=1.89$, *ns.*, $\eta^2=.02$
							Time x cohort: $F(1,101)=.00$, *ns.*, $\eta^2=.00$
Time 1 ME	60	-1.15	1.6	45	-1.27	1.2	Main effect of time: $F(1,102)=46.9$, $p<.001$, $\eta^2=.32$;Time 1<Time2
							Main effect of cohort: $F(1,102)=.00$, *ns.*, $\eta^2=.00$
Time 2 ME	60	-.08	1.11	45	-.25	.89	Main effect of nonverbal ability: $F(1,102)=4.73$, $p<.05$, $\eta^2=.04$
							Time x cohort: $F(1,102)=.46$, *ns.*, $\eta^2=.01$
Time 1 SP	60	-.09	1.13	45	-.44	1.12	Main effect of time: $F(1,102)=16.52$, $p<.001$, $\eta^2=.14$
							Main effect of cohort: $F(1,102)=.46$, *ns.*, $\eta^2=.00$
Time 2 SP	60	.31	1.16	45	.11	.98	Main effect of nonverbal ability: $F(1,102)=6.04$, $p<.05$, $\eta^2=.06$
							Time x cohort: $F(1,102)=.03$, *ns.*, $\eta^2=.00$
Time 1 AU	60	.23	1.04	45	-.61	.87	Main effect of time: $F(1,102)=.01$, *ns.*, $\eta^2=.00$
							Main effect of cohort: $F(1,102)=8.93$, $p<.01$, $\eta^2=.08$; ASD<LI
Time 2 AU	60	.05	.98	45	-.38	1.21	Main effect of nonverbal ability: $F(1,102)=3.35$, *ns.*, $\eta^2=.03$
							Time x cohort: $F(1,102)=4.52$, $p<.05$, $\eta^2=.04$

	N	M	SD	N	M	SD	Statistics
Time 1 PA	59	.18	.96	44	-.66	.89	Main effect of time: $F(1,100)=3.07$, *ns.*, $\eta^2=.03$;
							Main effect of cohort: $F(1,100)=20.78$, $p<.001$, $\eta^2=.17$; ASD<LI
Time 2 PA	59	.27	.95	44	-.46	.87	Main effect of nonverbal ability: $F(1,100)=.73$, *ns.*, $\eta^2=.01$
							Time x cohort: $F(1,100)=.06$, *ns.*, $\eta^2=.00$
Time 1 FI	59	-.18	1	40	-.74	1.07	Main effect of time: $F(1,96)=.03$, *ns.*, $\eta^2=.00$;Time 1=Time2
							Main effect of cohort: $F(1,96)=8.62$, $p<.01$, $\eta^2=.08$; ASD<LI
Time 2 FI	59	-.3	1.02	40	-.71	1.02	Main effect of nonverbal ability: $F(1,96)=.43$, *ns.*, $\eta^2=.00$
							Time x cohort: $F(1,96)=.15$, *ns.*, $\eta^2=.00$
Time 1 PE	58	.34	1.24	44	-.47	1.18	Main effect of time: $F(1,99)=2.95$, *ns.*, $\eta^2=.03$;
							Main effect of cohort: $F(1,99)=9.27$, $p<.01$, $\eta^2=.09$; ASD<LI
Time 2 PE	58	.11	1.13	44	-.51	1.03	Main effect of nonverbal ability: $F(1,99)=2.41$, *ns.*, $\eta^2=.02$
							Time x cohort: $F(1,99)=1.85$, *ns.*, $\eta^2=.02$
Time 1 SC	58	.34	1.12	45	-.15	1.01	Main effect of time: $F(1,100)=.34$, *ns.*, $\eta^2=.00$
							Main effect of cohort: $F(1,100)=6.8$, $p<.05$, $\eta^2=.06$; ASD<LI
Time 2 SC	58	.42	1.19	45	-.11	1.21	Main effect of nonverbal ability: $F(1,100)=.09$, *ns.*, $\eta^2=.00$
							Time x cohort: $F(1,100)=.09$, *ns.*, $\eta^2=.00$
Time 1 BU	58	-1.53	1.76	44	-1.7	1.59	Main effect of time: $F(1,99)=34.99$, $p<.001$, $\eta^2=.26$;Time 1<Time2
							Main effect of cohort: $F(1,99)=.54$, *ns.*, $\eta^2=.01$
Time 2 BU	58	-.31	1.32	44	-.53	1.21	Main effect of nonverbal ability: $F(1,99)=.25$, *ns.*, $\eta^2=.00$
							Time x cohort: $F(1,99)=.19$, *ns.*, $\eta^2=.00$

Note: PH= physical well-being; PW= psychological well-being; ME= moods and emotions; SP= self-perception; AU = autonomy;PA = parent relations and home life; FI = financial resources; PE = social support and peers; SC= school environment; BU = social acceptance (bullying)

Table 44. Year group effects on KIDSCREEN at Time 1

Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons
		N	M	SD	N	M	SD	
PH	Younger	24	.16	.89	16	-.3	.85	Main effect of year group: $F(1,111)=1.5$, ns., $\eta^2=.01$
	Older	41	-.13	.86	35	-.43	.98	Main effect of cohort: $F(1,111)=2.9$, ns., $\eta^2=.03$
								Main effect of nonverbal ability: $F(1,111)=1.49$, ns., $\eta^2=.01$
								Year group x cohort interaction: $F(1,111)=.32$, ns., $\eta^2=.00$;
PW	Younger	24	-.01	.7	16	-.12	1	Main effect of year group: $F(1,111)=.15$, ns., $\eta^2=.00$
	Older	41	.25	.86	35	-.5	1.03	Main effect of cohort: $F(1,111)=3.7$, ns., $\eta^2=.03$
								Main effect of nonverbal ability: $F(1,111)=2.29$, ns., $\eta^2=.02$
								Year group x cohort interaction: $F(1,111)=2.61$, ns., $\eta^2=.02$;
ME	Younger	24	-.64	1.54	16	-1.26	1.16	Main effect of year group: $F(1,111)=1.98$, ns., $\eta^2=.02$
	Older	41	-1.36	1.57	35	-1.27	1.16	Main effect of cohort: $F(1,111)=.03$, ns., $\eta^2=.00$
								Main effect of nonverbal ability: $F(1,111)=8.53$, $p<.01$, $\eta^2=.07$
								Year group x cohort interaction: $F(1,111)=2.74$, ns., $\eta^2=.02$;
SP	Younger	24	.24	1.08	16	-.27	1.19	Main effect of year group: $F(1,111)=2.66$, ns., $\eta^2=.02$
	Older	41	-.15	1.22	35	-.55	1.01	Main effect of cohort: $F(1,111)=1.44$, ns., $\eta^2=.01$
								Main effect of nonverbal ability: $F(1,111)=11.19$, $p<.01$, $\eta^2=.09$
								Year group x cohort interaction: $F(1,111)=.4$, ns., $\eta^2=.00$;
AU	Younger	24	.24	1.1	16	-.6	.92	Main effect of year group: $F(1,111)=.02$, ns., $\eta^2=.00$
	Older	41	.26	1.03	35	-.66	.81	Main effect of cohort: $F(1,111)=16.82$, $p<.001$, $\eta^2=.13$
								Main effect of nonverbal ability: $F(1,111)=1.33$, ns., $\eta^2=.01$
								Year group x cohort interaction: $F(1,111)=.01$, ns., $\eta^2=.00$;
PA	Younger	23	-.24	.74	16	-.58	.64	Main effect of year group: $F(1,110)=2.2$, ns., $\eta^2=.02$
	Older	41	.45	.96	35	-.74	.96	Main effect of cohort: $F(1,110)=14.78$, $p<.001$, $\eta^2=.12$;ASD<LI
								Main effect of nonverbal ability: $F(1,110)=1.58$, ns., $\eta^2=.01$
								Year group x cohort interaction: $F(1,110)=5.2$, $p<.05$, $\eta^2=.05$;

FI	Younger	23	-.35	.97	15	-.5	1.29	Main effect of year group: $F(1,106)=.14$, *ns.*, $\eta^2=.00$;
	Older	41	-.06	.97	32	-.94	.97	Main effect of cohort: $F(1,106)=6.18$, $p<.05$, $\eta^2=.06$; ASD<LI
								Main effect of nonverbal ability: $F(1,106)=.17$, *ns.*, $\eta^2=.00$
								Year group x cohort interaction: $F(1,106)=3.31$, *ns.*, $\eta^2=.03$;
PE	Younger	22	.58	1.15	16	-.45	1.48	Main effect of year group: $F(1,108)=1.13$, *ns.*, $\eta^2=.01$
	Older	41	.19	1.25	34	-.58	1	Main effect of cohort: $F(1,108)=12.98$, $p<.001$, $\eta^2=.11$; ASD<LI
								Main effect of nonverbal ability: $F(1,108)=.00$, *ns.*, $\eta^2=.00$
								Year group x cohort interaction: $F(1,108)=.28$, $p>.05$, $\eta^2=.00$;
SC	Younger	22	.45	.99	16	.04	1.01	Main effect of year group: $F(1,109)=.88$, *ns.*, $\eta^2=.01$
	Older	41	.39	1.22	35	-.3	.97	Main effect of cohort: $F(1,109)=5.85$, $p<.01$, $\eta^2=.02$; ASD<LI
								Main effect of nonverbal ability: $F(1,109)=.02$, *ns.*, $\eta^2=.00$
								Year group x cohort interaction: $F(1,109)=.39$, $p>.05$, $\eta^2=.00$;
BU	Younger	22	-.9	1.52	15	-1.91	1.59	Main effect of year group: $F(1,108)=.37$, *ns.*, $\eta^2=.00$
	Older	41	-1.7	1.81	35	-1.5	1.52	Main effect of cohort: $F(1,108)=.74$, *ns.*, $\eta^2=.01$;ASD=LI
								Main effect of nonverbal ability: $F(1,108)=2.24$, *ns.*, $\eta^2=.02$
								Year group x cohort interaction: $F(1,108)=4.12$, $p<.05$, $\eta^2=.04$;
								1) LI: younger>older, for ASD: younger=older
								2) younger: LI=ASD, older: LI=ASD

Note: PH= physical well-being; PW= psychological well-being; ME= moods and emotions; SP= self-perception; AU = autonomy;PA = parent relations and home life; FI = financial resources; PE = social support and peers; SC= school environment; BU = social acceptance (bullying)

Table 45. Year group effects on KIDSCREEN Time 2

Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons
		N	*M*	*SD*	*N*	*M*	*SD*	
PH	Younger	25	.15	1.08	18	.02	1.07	Main effect of year group: $F(1,112)=6.61$, $p<.05$, $\eta^2=.06$; younger>older
	Older	41	-.25	.95	33	-.47	.7	Main effect of cohort: $F(1,112)=.37$, *ns.*, $\eta^2=.00$;
								Main effect of nonverbal ability: $F(1,112)=1.59$, *ns.*, $\eta^2=.01$
								Year group x cohort interaction: $F(1,112)=.03$, *ns.*, $\eta^2=.00$;
PW	Younger	25	.41	.86	18	-.47	.9	Main effect of year group: $F(1,112)=2.36$, *ns.*, $\eta^2=.02$
	Older	42	-.16	1.04	32	-.37	.81	Main effect of cohort: $F(1,112)=6.04$, $p<.05$, $\eta^2=.05$; ASD<LI
								Main effect of nonverbal ability: $F(1,112)=4.06$, $p<.05$, $\eta^2=.04$
								Year group x cohort interaction: $F(1,112)=4.15$, $p<.05$, $\eta^2=.04$;
								1) LI: younger>older, for ASD: younger=older
								2) younger: LI>ASD, older: LI=ASD
ME	Younger	25	.07	1.31	18	-.52	.87	Main effect of year group: $F(1,113)=.04$, *ns.*, $\eta^2=.00$
	Older	42	-.14	1.02	33	-.2	.86	Main effect of cohort: $F(1,113)=1.76$, *ns.*, $\eta^2=.02$
								Main effect of nonverbal ability: $F(1,113)=1.21$, *ns.*, $\eta^2=.01$
								Year group x cohort interaction: $F(1,113)=1.94$, *ns.*, $\eta^2=.02$;
SP	Younger	25	.34	1.1	18	.12	.89	Main effect of year group: $F(1,113)=.38$, *ns.*, $\eta^2=.00$
	Older	42	.2	1.2	33	.08	.98	Main effect of cohort: $F(1,113)=.13$, *ns.*, $\eta^2=.00$
								Main effect of nonverbal ability: $F(1,113)=3.27$, *ns.*, $\eta^2=.03$
								Year group x cohort interaction: $F(1,113)=.12$, *ns.*, $\eta^2=.00$;
AU	Younger	25	.05	.89	18	-.69	1.41	Main effect of year group: $F(1,113)=.13$, *ns.*, $\eta^2=.00$
	Older	42	-.14	1.06	33	-.26	1.04	Main effect of cohort: $F(1,113)=2.24$, *ns.*, $\eta^2=.02$
								Main effect of nonverbal ability: $F(1,113)=4.9$, $p<.05$, $\eta^2=.04$
								Year group x cohort interaction: $F(1,113)=2.6$, *ns.*, $\eta^2=.02$;

		N	M	SD	N	M	SD	
PA	Younger	25	.15	.86	18	-.76	.5	Main effect of year group: $F(1,112)=2.45$, *ns.*, $\eta^2=.02$
	Older	42	.25	1.02	32	-.26	1.01	Main effect of cohort: $F(1,112)=13.06$, $p<.001$, $\eta^2=.10$ ASD<LI
								Main effect of nonverbal ability: $F(1,112)=.82$, *ns.*, $\eta^2=.01$
								Year group x cohort interaction: $F(1,112)=1.37$, *ns.*, $\eta^2=.01$;
FI	Younger	25	-.51	1.18	17	-.82	1.41	Main effect of year group: $F(1,110)=.62$, *ns.*, $\eta^2=.01$
	Older	42	-.29	1	31	-.73	.98	Main effect of cohort: $F(1,110)=3.26$, $p<.05$, $\eta^2=.03$; ASD=LI
								Main effect of nonverbal ability: $F(1,110)=.15$, *ns.*, $\eta^2=.00$
								Year group x cohort interaction: $F(1,110)=.1$, *ns.*, $\eta^2=.00$;
PE	Younger	25	.46	1	18	-.55	1.27	Main effect of year group: $F(1,113)=3.68$, *ns.*, $\eta^2=.03$
	Older	42	-.15	1.15	33	-.6	1.03	Main effect of cohort: $F(1,113)=6.98$, $p<.01$, $\eta^2=.06$; ASD<LI
								Main effect of nonverbal ability: $F(1,113)=10.65$, $p<.01$, $\eta^2=.09$
								Year group x cohort interaction: $F(1,113)=2.43$, *ns.*, $\eta^2=.02$;
SC	Younger	25	1.06	.96	18	-.04	1.33	Main effect of year group: $F(1,113)=5.53$, $p<.05$, $\eta^2=.05$; younger>older
	Older	42	.09	1.18	33	-.12	1.18	Main effect of cohort: $F(1,113)=7.28$, $p<.01$, $\eta^2=.06$;ASD<LI
								Main effect of nonverbal ability: $F(1,113)=.2$, *ns.*, $\eta^2=.00$
								Year group x cohort interaction: $F(1,113)=4.01$, $p<.05$, $\eta^2=.03$;
								1) LI: younger>older, for ASD: younger=older
								2) younger: LI>ASD, older: LI=ASD
BU	Younger	25	-.27	1.33	18	-.36	1.13	Main effect of year group: $F(1,113)=.54$, *ns.*, $\eta^2=.01$
	Older	42	-.45	1.36	33	-.58	1.26	Main effect of cohort: $F(1,113)=.3$, *ns.*, $\eta^2=.00$
								Main effect of nonverbal ability: $F(1,113)=.3$, *ns.*, $\eta^2=.00$
								Year group x cohort interaction: $F(1,113)=.02$, *ns.*, $\eta^2=.00$;

Note: PH= physical well-being; PW= psychological well-being; ME= moods and emotions; SP= self-perception; AU = autonomy;PA = parent relations and home life; FI = financial resources; PE = social support and peers; SC= school environment; BU = social acceptance (bullying)

3.8. How do pupils with LI and ASD perform on national curriculum tests at Key Stages 1 and 2?

3.8.1. Key Stage 1 attainment

Table 46. Cohort effect on Key Stage 1 tests

Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability)
	N	*M*	*SD*	*N*	*M*	*SD*	
Reading	67	10.64	3.89	39	12.03	5.58	Main effect of cohort: $F(1,102)=2.44$, *ns.*, $\eta^2=.02$
							Main effect of nonverbal ability: $F(1,102)=28.41$, $p<.001$, $\eta^2=.22$
Writing	67	9.75	3.6	39	10.69	5.16	Main effect of cohort: $F(1,102)=1.26$, *ns*, $\eta^2=.01$
							Main effect of nonverbal ability: $F(1,102)=19.59$, $p<.001$, $\eta^2=.16$
English	67	10.19	3.43	39	11.36	5.22	Main effect of cohort: $F(1,102)=2.09$, *ns.*, $\eta^2=.02$
							Main effect of nonverbal ability: $F(1,102)=27.57$, $p<.001$, $\eta^2=.21$
Maths	67	11.51	3.76	39	12.28	5.48	Main effect of cohort: $F(1,102)=.36$, *ns.*, $\eta^2=.00$
							Main effect of nonverbal ability: $F(1,102)=30.25$, $p<.001$, $\eta^2=.23$
Science	67	11.69	3.51	39	12.38	5.11	Main effect of cohort: $F(1,102)=.42$, *ns.*, $\eta^2=.00$
							Main effect of nonverbal ability: $F(1,102)=9.78$, $p<.01$, $\eta^2=.09$
Average across all tests	67	10.9	3.04	39	11.85	4.87	Main effect of cohort: $F(1,102)=1.35$, *ns.*, $\eta^2=.01$
							Main effect of nonverbal ability: $F(1,102)=29.45$, $p<.001$, $\eta^2=.22$

Table 47. Year group effects on Key Stage 1 tests

Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons
		N	*M*	*SD*	*N*	*M*	*SD*	
Reading	Younger	25	9.8	2.94	19	10.79	5.16	Main effect of year group: $F(1,67)=.00$, *ns.*, $\eta^2=.00$; younger=older
	Older	16	9	4	12	12	5.56	Main effect of cohort: $F(1,67)=1.16$, *ns.*, $\eta^2=.02$;ASD=LI
								Main effect of nonverbal ability: $F(1,67)=22.35$, $p<.001$, $\eta^2=.25$
								Year group x cohort interaction: $F(1,67)=.51$, *ns.,* $\eta^2=.01$;
Writing	Younger	25	9.32	3.2	19	9.32	4.82	Main effect of year group: $F(1,67)=.00$, *ns.*, $\eta^2=.00$; younger=older
	Older	16	8	3.27	12	10.83	5	Main effect of cohort: $F(1,67)=.51$, *ns.*, $\eta^2=.01$;ASD=LI
								Main effect of nonverbal ability: $F(1,67)=13.72$, $p<.001$, $\eta^2=.17$
								Year group x cohort interaction: $F(1,67)=1.62$, *ns.*, $\eta^2=.02$;
English	Younger	25	9.56	2.96	19	10.05	4.88	Main effect of year group: $F(1,67)=.00$, *ns.*, $\eta^2=.00$
	Older	16	8.5	2.97	12	11.42	5	Main effect of cohort: $F(1,67)=.94$, *ns.*, $\eta^2=.01$
								Main effect of nonverbal ability: $F(1,67)=20.78$, $p<.001$, $\eta^2=.24$
								Year group x cohort interaction: $F(1,67)=1.14$, *ns.*, $\eta^2=.02$;
Maths	Younger	25	10.92	3.39	19	11	5.89	Main effect of year group: $F(1,67)=.12$, *ns.*, $\eta^2=.00$
	Older	16	10.63	3.44	12	12.33	4.85	Main effect of cohort: $F(1,67)=.02$, *ns.*, $\eta^2=.00$
								Main effect of nonverbal ability: $F(1,67)=22.65$, $p<.001$, $\eta^2=.25$
								Year group x cohort interaction: $F(1,67)=.23$, *ns.*, $\eta^2=.00$;
Science	Younger	25	10.92	2.86	19	9.95	5.39	Main effect of year group: $F(1,67)=4.74$, $p<.05$, $\eta^2=.07$; younger=older
	Older	16	11.63	3.78	12	13.5	3.73	Main effect of cohort: $F(1,67)=.03$, *ns.*, $\eta^2=.00$
								Main effect of nonverbal ability: $F(1,67)=8.81$, $p<.01$, $\eta^2=.12$
								Year group x cohort interaction: $F(1,67)=1.69$, *ns.*, $\eta^2=.03$;

Average across all tests	Younger	25	10.24	2.68	19	10.26	4.85	Main effect of year group: $F(1,67)=.58$, *ns.*, $\eta^2=.01$
								Main effect of cohort: $F(1,67)=.2$, *ns.*, $\eta^2=.00$
								Main effect of nonverbal ability: $F(1,67)=24.05$, $p<.001$, $\eta^2=.26$
	Older	16	9.81	2.32	12	12.17	4.33	Year group x cohort interaction: $F(1,67)=1.29$, *ns.*, $\eta^2=.02$

Note: Younger = Year 3; Older = Year 5

3.8.2. Key Stage 2 attainment

Table 48. Cohort effect on Key Stage 2 tests

Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability)
	N	M	SD	N	M	SD	
English	41	19.98	4.43	37	24.24	5.93	Main effect of cohort: $F(1,74)=5.74$, $p<.05$, $\eta^2=.07$;ASD>LI
							Main effect of nonverbal ability: $F(1,74)=10.47$, $p<.01$, $\eta^2=.12$
Maths	42	21	6.07	37	24.57	6.4	Main effect of cohort: $F(1,75)=1.51$, *ns.*, $\eta^2=.02$
							Main effect of nonverbal ability: $F(1,75)=12.57$, $p<.01$, $\eta^2=.14$
Science	26	23.54	5.14	25	27.72	4.69	Main effect of cohort: $F(1,47)=4.39$, $p<.05$, $\eta^2=.09$;ASD>LI
							Main effect of nonverbal ability: $F(1,47)=1.75$, *ns.*, $\eta^2=.04$
Average across English and Maths	41	20.56	4.96	37	24.41	5.84	Main effect of cohort: $F(1,74)=3.34$, *ns.*, $\eta^2=.04$
							Main effect of nonverbal ability: $F(1,74)=13.16$, $p<.01$, $\eta^2=.15$

Table 49. Year group effects on Key Stage 2 tests

Measure	Year group	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability) and group comparisons
		N	M	SD	N	M	SD	
English	Younger	16	19.5	4.65	12	23	6.44	Main effect of year group: $F(1,73)=1.89$, *ns.*, $\eta^2=.03$
	Older	25	20.28	4.35	25	24.84	5.71	Main effect of cohort: $F(1,73)=4.66$, $p<.05$, $\eta^2=.06$;ASD>LI
								Main effect of nonverbal ability: $F(1,73)=10.12$, $p<.01$, $\eta^2=.12$
								Year group x cohort interaction: $F(1,73)=.13$, *ns.*, $\eta^2=.00$
Maths	Younger	16	21	6.93	12	22.5	7.29	Main effect of year group: $F(1,74)=1.97$, *ns.*, $\eta^2=.03$
	Older	26	21	5.63	25	25.56	5.82	Main effect of cohort: $F(1,74)=.76$, *ns.*, $\eta^2=.01$
								Main effect of nonverbal ability: $F(1,74)=12.17$, $p<.01$, $\eta^2=.14$
								Year group x cohort interaction: $F(1,74)=.99$, *ns.*, $\eta^2=.01$;
Average across English and Maths	Younger	16	20.25	5.64	12	22.75	6.7	Main effect of year group: $F(1,73)=2.34$, *ns.*, $\eta^2=.03$
								Main effect of cohort: $F(1,73)=2.34$, *ns.*, $\eta^2=.03$
								Main effect of nonverbal ability: $F(1,73)=12.69$, $p<.01$, $\eta^2=.15$
								Year group x cohort interaction: $F(1,73)=.5$, *ns.*, $\eta^2=.01$;
	Older	25	20.76	4.58	25	25.2	5.34	

Note: Younger = Year 5; Older = Year 7

3.8.3. Progress

Table 50. Cohort effects for progress across Key Stage 1 and Key Stage 2

Measure	LI			ASD			Analysis (ANCOVA controlling for nonverbal ability)
	N	M	SD	N	M	SD	
English	16	11	4.47	12	11.58	2.88	Main effect of cohort: $F(1,25)=.02$, *ns.*, $\eta^2=.00$
							Main effect of nonverbal ability: $F(1,25)=.7$, *ns.*, $\eta^2=.03$
Maths	16	10.37	4.97	12	10.17	4.22	Main effect of cohort: $F(1,25)=.19$, *ns.*, $\eta^2=.01$
							Main effect of nonverbal ability: $F(1,25)=1.4$, *ns.*, $\eta^2=.05$
Average	16	11.04	4.65	12	11.03	3.02	Main effect of cohort: $F(1,25)=.09$, *ns.*, $\eta^2=.00$
							Main effect of nonverbal ability: $F(1,25)=1.1$, *ns.*, $\eta^2=.04$

3.9. How did teachers report that the pupils' needs were being met in school?

Table 51. Cohort effects on provision available in school at Time 1

Type of provision	LI	ASD	Total	Analysis (Chi-square)
LSA in class - yes	52	37	89	
LSA in class - no	3	4	7	
Total	55	41	96	$X^2(1) =.64$, *ns.*
LSA small group - yes	37	19	56	
LSA small group - no	11	11	22	
Total	48	30	78	$X^2(1) =1.72$, *ns.*
LSA individual - yes	23	20	43	
LSA individual - no	18	12	30	
Total	41	32	73	$X^2(1) =.30$, *ns.*
SENCO in class - yes	12	6	18	
SENCO in class - no	26	24	50	
Total	38	30	68	$X^2(1) =1.16$, *ns.*
SENCO small group - yes	8	8	16	
SENCO small group - no	27	21	48	
Total	35	29	64	$X^2(1) =.19$, *ns.*
SENCO individual –yes	4	4	8	
SENCO individual –no	25	23	48	
Total	29	27	56	$X^2(1) =.02$, *ns.*
SLT in class - yes	9	14	23	
SLT in class - no	26	16	44	
Total	35	32	67	$X^2(1) =.3.11$, *ns.*
SLT small group - yes	16	10	26	
SLT small group - no	19	16	35	
Total	35	26	61	$X^2(1) =.32$, ns.
SLT individual - yes	16	14	30	
SLT individual - no	20	19	39	

Total	36	33	69	$X^2(1) = .02$, ns.
SLT consultancy - yes	2	2	4	
SLT consultancy - no	2	2	4	
Total	4	4	8	*ns*

Note: LSA = Learning Support Assistant; SENCO = Special Educational Needs Coordinator;

SLT = Speech and Language Therapist

Table 52. Cohort effects on provision available in schools at Time 2[1]

Type of provision	LI	ASD	Total	Analysis (Chi-square)
LSA in class - yes	33	29	62	
LSA in class - no	6	6	12	
Total	39	35	74	$X^2(1)$ =.04, *ns.*
LSA small group - yes	26	24	50	
LSA small group - no	9	6	15	
LSA small group - DN	3	2	5	
Total	38	32	70	$X^2(1)$ =.29, *ns.*
LSA individual - yes	13	11	24	
LSA individual - no	20	12	32	
LSA individual - DN	2	1	3	
Total	35	24	59	$X^2(1)$ =.39, *ns.*
SENCO in class - yes	5	6	11	
SENCO in class - no	25	24	49	
SENCO in class - DN	4	1	5	
Total	34	31	65	$X^2(1)$ =.11, ns.
SENCO small group - yes	5	5	10	
SENCO small group - no	24	20	44	
SENCO small group - DN	2	3	5	
Total	31	28	59	$X^2(1)$ =.06, *ns.*
SENCO individual - yes	3	3	6	
SENCO individual - no	23	18	41	
SENCO individual - DN	3	4	7	
Total	29	25	54	$X^2(1)$ =.07, *ns*
SLT in class - yes	5	10	15	
SLT in class - no	26	22	48	
SLT in class - DN	5	2	7	
Total	36	34	70	$X^2(1)$ = 1.98*, ns.*

[1] DN are not included in the statistical analyses

SLT small group - yes	10	8	18	
SLT small group - no	19	14	33	
SLT small group - DN	4	3	7	
Total	33	25	58	$X^2(1) =.02$, *ns.*
SLT individual - yes	9	9	18	
SLT individual - no	18	12	30	
SLT individual - DN	3	4	7	
Total	30	25	55	$X^2(1) =.46$, *ns.*

Note: LSA = Learning Support Assistant; SENCO = Special Educational Needs Coordinator;

SLT = Speech and Language Therapist; DN = Don't know

3.10. What did we observe during English language and literacy lessons?

Table 53. Cohort effects of seating arrangements in the classroom

Seating	LI-av-NV	ASD-av-NV	LI-low-NV	ASD-low-NV	Total	Analysis (Chi-square)
Front	43	28	17	8	96	$X^2(6) = 5.09$, *ns.*
Back	11	11	9	4	35	
Middle	4	3	0	0	7	
Not applicable	12	4	2	2	20	
Total	70	46	28	14	158	

Table 54. Cohort effects on location

Seating	LI-av-NV			ASD-av-NV			LI-low-NV			ASD-low-NV			ANOVA
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	
Main class	65	.84	.31	45	.61	.46	27	.82	.39	13	.59	.47	F(3,149)= 4.04, p = .009 η2=.08; ASD-av-NV < LI-av-NV=LI-low-NV =ASD-low-NV
In class with adult	65	.00	.00	45	.00	.00	27	.07	.27	13	.00	.00	F(3,149)= 3.19, p = .025 η2=.08; ASD-low-NV > LI-av-NV=LI-low-NV =ASD-av-NV
In class with LSA	65	.17	.32	45	.37	.45	27	.26	.41	13	.45	.45	F(3,149)= 3.23, p = .024 η2=.06; ASD-av-NV > LI-av-NV=LI-low-NV =ASD-low-NV
Withdrawal from class	65	.04	.18	45	.06	.22	27	.00	.00	13	.02	.06	F(3,149)= .880,*ns*

Note: LSA= Learning Support Assistant

Table 55. Cohort effect on location over 10 observation points

Time frame and location	LI	ASD	Analysis (Chi-square)
Time 1 in class	80	37	$X^2(1)=9.19$, $p<.01$
Time 1 in class with LSA	14	21	
Time 2 in class	79	37	$X^2(1)=9$, $p<.01$
Time 2 in class with LSA	15	22	
Time 3 in class	76	34	$X^2(1)=10.48$, $p<.01$
Time 3 in class with LSA	17	25	
Time 4 in class	81	33	$X^2(1)=17.45$, $p<.001$
Time 4 in class with LSA	13	26	
Time 5 in class	75	35	$X^2(1)=6.69$, $p<.05$
Time 5 in class with LSA	18	22	
Time 6 in class	73	35	$X^2(1)=5.12$, $p<.05$
Time 6 in class with LSA	20	22	
Time 7 in class	73	35	$X^2(1)=4.6$, $p<.05$
Time 7 in class with LSA	21	20	
Time 8 in class	73	32	$X^2(1)=6.33$, $p<.05$
Time 8 in class with LSA	21	23	
Time 9 in class	72	32	$X^2(1)=6.82$, $p<.01$
Time 9 in class with LSA	21	24	
Time 10 in class	70	36	$X^2(1)=2.05$, *ns.*
Time 10 in class with LSA	23	20	

Note: Time X = time frame

3.10.3. Who did pupils work with in the class?

Table 56. Cohort effects for working arrangements

| Measure | LI-av-NV | | | ASD-av-NV | | | LI-low-NV | | | ASD-low-NV | | | Analysis (ANOVA) and group |
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	comparisons (Bonferroni)
Whole class	66	.53	.36	45	.34	.40	28	.41	.37	14	.34	.38	$F(3,152) = 2.57$, *ns*
Large group	66	.02	.08	45	.08	.23	28	.01	.07	14	.00		$F(3,152) = 2.14$, *ns*
Small group	66	.48	.14	45	.07	.23	28	.03	.08	14	.14	.35	$F(3,152) = 1.22$, *ns*
Pairs	66	.04	.10	45	.02	.11	28	.01	.04	14	.01	.05	$F(3,152) = 1.14$, *ns*
Alone	66	.19	.30	45	.11	.24	28	.30	.37	14	.06	.17	$F(3,152) = 3.33$, $p = .021$. $\eta2=.06$, LI-low-NV > ASD-av-NV = ASD-low-NV=LI-low-NV

3.10.4. Task differentiation

Table 57. Cohort effects for proportion of task differentiation

LI-av-NV		ASD-av-NV		LI-low-NV		ASD-low-NV		Analysis (ANOVA) and group comparisons (Bonferroni)
M	*SD*	M	SD	M	SD	M	SD	
.09	.22	.17	.37	.15	.35	.43	.48	F(3,149) = 4.15, p = .007 η2=.08, ASD-low-NV >LI-av-NV=ASD-av-NV = LI-low-NV

3.10.5. Pupil engagement

Table 58. Cohort effects for proportion of on task behaviours

LI-av-NV			ASD-av-NV			LI-low-NV			ASD-low-NV			Analysis (ANOVA) and group
N	M	SD	N	M	SD	N	M	SD	N	M	SD	comparisons (Bonferroni)
64	.74	.23	45	.71	.28	28	.65	.30	14	.71	.21	$F(3,150) = .71$, *ns*

Table 59. Cohort effects for proportion of off task behaviours

Measure	LI-av-NV			ASD-av-NV			LI-low-NV			ASD-low-NV			Analysis (ANOVA) and group
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	comparisons (Bonferroni)
Passive	64	.07	.11	45	.12	.20	28	.11	.22	14	.09	.16	$F(3,150) = .94$, ns
Chat	64	.05	.10	45	.06	.16	28	.05	.10	14	.02	.14	$F(3,150) = .80$, ns
Looking away	64	.07	.10	45	.07	.11	28	.11	.15	14	.10	.20	$F(3,150) = .96$, ns
Disruptive	64	.01	.05	45	.00	.00	28	.02	.07	14	.02	.04	$F(3,150) = .18$, ns
Playing	64	.04	.08	45	.02	.06	28	.04	.11	14	.04	.08	$F(3,150) = .70$, ns
Other tasks	64	.04	.08	45	.02	.06	28	.04	.11	14	.04	.08	$F(3,150) = .47$, ns

3.13.1 Which factors explain individual differences in reading?

3.13.1.1. Word recognition

Table 60. Hierarchical regression predicting word recognition at Time 1 and Time 2

Step	Variable	R^2 change	F change	Standardised β (model with all variables included)
Time 1				
1.	Nonverbal ability	.143	19.467***	.09
2.	PhAB	.199	35.033***	.27**
3.	BPVS	.081	16.127***	.30**
4.	TROG	.000	.015	.01
5.	SRS total	.003	.658	-.03
6.	Cohort	.026	5.324*	.21*
Time 2				
1.	Nonverbal ability	.186	26.920***	.133
2.	PhAB	.237	48.049***	.328**
3.	BPVS	.071	16.227***	.294**
4.	TROG	.004	1.023	-.093
5.	SRS total	.004	.947	-.061
6.	Cohort	.054	13.774*	.296*

Note: Nonverbal ability = British Ability Scale; PhAB =Phonological Assessment Battery; BPVS = British Picture Vocabulary Scale; TROG = Test for Reception of Grammar; SRS total = Social Responsiveness Scale; * = $p<.05$; **= $p<.01$; ***=$p<.001$

Table 61. Regression analysis predicting word recognition at Time 2, controlling for the autoregressor (word recognition at Time1)

Step	Variable	R^2 change	F change	Standardised β (model with all variables included)
1.	Non-verbal ability	.191	27.621***	.075
2.	Word recognition	.584	320.626***	.698***
3.	PhAB	.017	9.717**	.141*
4.	BPVS	.003	1.500	.084
5.	TROG	.005	3.265	-.104
6.	SRS total	.000	.061	-.053
7.	Cohort	.014	8.902**	.154**

Note: Nonverbal ability = British Ability Scale; PhAB =Phonological Assessment Battery; BPVS = British Picture Vocabulary Scale; TROG = Test for Reception of Grammar; SRS total = Social Responsiveness Scale; * = $p<.05$; **= $p<.01$; ***=$p<.001$

Table 62. Regression analyses for LI vs. ASD cohorts predicting word recognition at Time 1

Cohort	Step	Variable	R^2 change	F change	Standardised β (model with all variables included)
LI	1.	Non-verbal ability	.07	5.092*	.088
	2.	PhAB	.157	13.572***	.331**
	3.	BPVS	.053	4.828*	.203
	4.	TROG	.018	1.62	.132
	5.	SRS total	.001	.084	-.033
ASD	1.	Non-verbal ability	.099	5.191*	.077
	2.	PhAB	.191	12.351**	.254
	3.	BPVS	.098	7.231*	.488**
	4.	TROG	.008	.547	-.129
	5.	SRS total	.000	.000	.000

Note: Nonverbal ability = British Ability Scale; PhAB =Phonological Assessment Battery; BPVS = British Picture Vocabulary Scale; TROG = Test for Reception of Grammar; SRS total = Social Responsiveness Scale; * = $p<.05$; **= $p<.01$; ***=$p<.001$

Table 63. Regression analyses for LI vs. ASD cohorts predicting word recognition at Time 2

Cohort	Step	Variable	R^2 change	F change	Standardised β (model with all variables included)
LI	1.	Non-verbal ability	.063	4.668*	.049
	2.	PhAB	.225	21.497***	.473***
	3.	BPVS	.021	2.014	.143
	4.	TROG	.000	.006	.029
	5.	SRS total	.004	.358	.066
ASD	1.	Non-verbal ability	.193	11.24**	.194
	2.	PhAB	.207	15.848***	.269
	3.	BPVS	.077	6.646*	.459**
	4.	TROG	.018	1.586	-.201
	5.	SRS total	.025	2.234	-.175

Note: Nonverbal ability = British Ability Scale; PhAB =Phonological Assessment Battery; BPVS = British Picture Vocabulary Scale; TROG = Test for Reception of Grammar; SRS total = Social Responsiveness Scale; * = $p<.05$; **= $p<.01$; ***=$p<.001$

3.13.1.2. Reading comprehension

Table 64. Regression analyses predicting reading comprehension at Time 1 and Time 2

	Step	Variable	R^2 change	F change	Standardised β (model with all variables included)
Time 1					
	1.	Non-verbal ability	.195	25.135***	.144
	2.	Concurrent word recognition	.196	33.032***	.194*
	3.	PhAB	.075	14.262***	.144
	4.	BPVS	.073	15.984***	.302**
	5.	TROG	.019	4.231*	.174
	6.	SRS total	.000	.103	-.023
	7.	Cohort	.000	.001	.003
Time 2					
	1.	Non-verbal ability	.205	25.506***	.154
	2.	Concurrent word recognition	.244	43.481***	.447***
	3.	PhAB	.000	.012	-.132
	4.	BPVS	.043	8.108*	.258*
	5.	TROG	.006	1.167	.088
	6.	SRS total	.008	1.429	-.094
	7.	Cohort	.000	.014	.011

Note: Nonverbal ability = British Ability Scale; PhAB =Phonological Assessment Battery; BPVS = British Picture Vocabulary Scale; TROG = Test for Reception of Grammar; SRS total = Social Responsiveness Scale; * = *p*<.05; **= *p*<.01; ***=*p*<.001

Table 65. Regression analyses predicting reading comprehension at Time 2, controlling for the autoregressor (reading comprehension Time1)

Step	Variable	R^2 change	F change	Standardised β (model with all variables included)
1.	Non-verbal ability	.239	27.332***	.203*
2.	Time 2 RC	.052	6.336*	-.094
3.	Time 2 WR	.217	37.49***	.490***
4.	PhAB	.000	.072	-.124
5.	BPVS	.031	5.553*	.26*
6.	TROG	.008	1.453	.114
7.	SRS total	.008	1.55	-.092
8.	Cohort	.000	.003	-.006

Note: Nonverbal ability = British Ability Scale; Time 2 RC = Time 1 reading comprehension; Time 1 WR = Time 1 word recognition; PhAB =Phonological Assessment Battery; BPVS = British Picture Vocabulary Scale; TROG = Test for Reception of Grammar; SRS total = Social Responsiveness Scale; * = $p<.05$; **= $p<.01$; ***=$p<.001$

3.13.2 Which factors explain variation in attainment on national curriculum test?

Table 66. Regression analyses predicting Key Stage 1 and 2 attainment

Key Stage	Step	Variable	R^2 change	F change	Standardised β (model with all variables included)
Key Stage 1					
English	1.	Age	.057	5.693*	-.641***
	2.	Nonverbal ability	.181	22.28***	.357***
	3.	Language	.095	13.214***	.381**
	4..	SRS	.000	.003	-.068
	5.	Cohort	.011	1.541	.127
Key Stage 1					
Maths	1.	Age	.019	1.888	-.524***
	2.	Nonverbal ability	.188	22.245**	.387***
	3.	Language	.074	9.505*	.348**
	4..	SRS	.001	.076	-.052
	5.	Cohort	.002	.253	.054
Key Stage 2					
English	1.	Age	.021	1.46	.105
	2.	Nonverbal ability	.231	20.69***	.313**
	3.	Language	.151	16.739***	.332**
	4..	SRS	.04	4.666*	-.318**
	5.	Cohort	.051	6.42*	.292*
Key Stage 2					
Maths	1.	Age	.015	1.085	.091
	2.	Nonverbal ability	.168	14.015***	.287*
	3.	Language	.102	9.604**	.312*
	4..	SRS	.027	2.64	-.226
	5.	Cohort	.013	1.211	.146

Note: SRS = Social Responsiveness Scale; * = $p<.05$; **= $p<.01$; ***=$p<.001$

3.13.3. Which factors explain emotional and behavioural difficulties?

Table 67. Regression analyses predicting SDQ emotional and behavioural problems at Time 1 and Time 2

	Step	Variable	R^2 change	F change	Standardised β (model with all variables included)
Time 1					
	1.	Non-verbal ability	.003	.320	.046
	2.	Language	.097	4.844*	
		BPVS			-.402**
		TROG			.156
	3.	SRS	.124	14.174***	.297*
	4.	Cohort	.012	1.347	.133
Time 2					
	1.	Non-verbal ability	.002	.220	.092
	2.	Language	.010	.427	
		BPVS			-.128
		TROG			.145
	3.	SRS	.273	32.502***	.583***
	4.	Cohort	.004	.480	-.077

Note: BPVS: British Picture Vocabulary Scale; TROG: Test for Reception of Grammar; * = $p<.05$; **= $p<.01$; ***=$p<.001$

Table 68. Regression analyses predicting KIDSCREEN psychological well-being at Time 1 and Time 2

	Step	Variable	R^2 change	F change	Standardised β (model with all variables included)
Time 1					
	1.	Non-verbal ability	.052	5.571*	-.092
	2.	Language	.051	2.814	
		BPVS			-.105
		TROG			-.131
	3.	SRS	.039	4.427*	-.142
	4.	Cohort	.011	1.214	-.135
Time 2					
	1.	Non-verbal ability	.049	5.209*	-.128
	2.	Language	.033	1.799	
		BPVS			-.035
		TROG			-.181
	3.	SRS	.051	5.822*	-.209
	4.	Cohort	.001	.148	-.049

Note: BPVS: British Picture Vocabulary Scale; TROG: Test for Reception of Grammar; * = $p<.05$; **= $p<.01$; ***=$p<.001$3.13.4. Which factors explain individual differences in classroom learning contexts and teacher reported differentiation?

Table 69. Regression analyses predicting observed LSA support

Step	Variable	R^2 change	F change	Standardised β (model with all variables included)
1.	Non-verbal ability	.007	.974	-.098
2.	Working memory	.003	.377	.049
3.	BPVS	.002	.251	-.138
4.	SRS	.028	3.769	.042
5.	Cohort	.054	7.547	.285**

Table 70. Regression analyses predicting observed differentiation

Step	Variable	R^2 change	F change	Standardised β (model with all variables included)
1.	Non-verbal ability	.011	1.430	-.143
2.	Working memory	.024	3.216*	.191
3.	BPVS	.004	.545	-.130
4.	SRS	.044	6.073	.137
5.	Cohort	.019	2.629	.167

Table 71. Regression analyses predicting content strategy factor

Step	Variable	R^2 change	F change	Standardised β (model with all variables included)
1.	Non-verbal ability	.022	2.224	.095
2.	Working memory	.035	3.644	-.043
3.	BPVS	.151	18.743	-.402
4.	SRS	.002	.282	.120
5.	Cohort	.022	2.734	-.179

Table 72. Regression analyses predicting structure strategy factor

Step	Variable	R2 change	F change	Standardised β (model with all variables included
1.	Non-verbal ability	.007	.974	.053
2.	Working memory	.003	377	039
3.	BPVS	002	.251	-.209
4,	SRS	.028	3.769**	.328
5.	Cohort	.054	7.547	.092