

# Linguistic challenges of the transition

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# **Linguistic challenges of the transition from primary to secondary school (ESRC-funded, Sept 2018- May 2021)**

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# Early ideas

Previous project on the language of science (2014- 2016), which included interviewing students in KS3 and KS4 about their understandings of climate change.

Evidence of students not being able to articulate ideas using academic language (both examples from Y10):

- if we're recycling stuff like the landfills, I don't know, it *releases something like, you know*, less landfills and less pollution and stuff like that.
- It's getting thicker because erm, there's more pollutants and they're like carbon dioxide, so cos it's getting thicker, less oxygen, over less gases, like bounce back off. So *they're getting less released* so there's holes in there, which makes it more warmer.

# Is school language different?

*[t]eaching environments [...] and teachers' language are very different in secondary schools from primary schools*

(Braund & Driver, 2005, p. 78)

'Response' used in textbooks/ educational websites

*[T]emperatures* warm in *response* to increasing amounts of greenhouse gases in the air (climatecentral.org)

the *Earth's* temperature is rising in *response* to emissions of greenhouse gases from the burning of oil, coal and gas (geographical.co.uk)

Shaped by orbital variations, *responses* such as the rise and fall of continental ice sheets and significant sea-level changes helped create the climate. (Wikipedia)

# Everyday language

Use of *response* is mostly literal, with human agency

he says it's quite (.) easy (.) to see whether people are (.)  
er in *their response* he says it's quite easy to see whether  
people are bringing stuff through or not (BNC2014 SKRC)

erm well I I was ah relatively positive with *my response*

there was no *response* on Facebook

I bet you any money at all if you emailed the suppliers  
direct you'd get a you'd get a better *response* and a  
quicker *response*

# So, is there a language problem for school students...?

*Children are able to think but they can't articulate their thoughts because of the lack of language [...] it is not the concepts they are finding difficult at Key Stage 3, it is the ability to access material given to them.*

Discussion with history teacher

## And if so, for any particular groups of students?

# The transition dip

“There is a large dip in mathematical attainment and attitudes towards maths as children move from primary to secondary school.”

Educational Endowment Foundation, Nov 2017

“There is evidence across the UK that a drop in attainment takes place during the transition. Characteristics of pupils particularly affected by the drop in attainment include: pupils receiving free school meals, those with poor prior attainment, those with low self-esteem and those from minority ethnic backgrounds.”

*A rapid evidence assessment: Investigating the drop in attainment during the transition phase* Wilson, P., 2011 for the Welsh Assembly Government

# Academic school language

“academic activities are associated with a kind of language that is different from that used in everyday activities”

(Leung, 2014, p. 137)

“A set of registers through which schooling activities are accomplished”

(Schleppegrell, 2012, p. 413).

Comprises overlapping subject-specific registers

(Christie, 2002; Christie & Derewianka, 2008)



# Research questions

RQ1: What are the linguistic characteristics of texts that students are required to understand and respond to at KS2, in terms of lexis, grammar and discourse?

RQ2: What are the linguistic characteristics of texts that students are required to understand and respond to at KS3, in terms of lexis, grammar and discourse?

RQ3: How does the language of KS3 vary according to subject area?

3a: Are there language characteristics and structures specific to different subject areas?

3b: If so, do subjects cluster into groups that have similar language characteristics and structures?

RQ4: How does the language of KS3 differ from the language students have previously encountered, at the levels of lexis, grammar and discourse?

4a: How does the language of KS3 differ from the language of KS2?

4b: How does the language of KS3 differ from non-specialist public language encountered outside school?

RQ5: How do teachers and students perceive the linguistic challenges of the transition from primary to secondary school?

# Project data

## Written data (Key Stage 2 and Key Stage 3)

- Worksheets
- Textbooks
- Exams and assessment tasks
- Lesson presentations
- Vocabulary/glossary booklets

## Spoken data (Key Stage 2 and Key Stage 3)

- Audio recordings of lessons

Interviews with pupils and teachers

Subjects: English, maths, science, history, geography

# Some early findings

Academic language challenges at the transition: classroom data and pupils' perceptions

# Data

## **Interview data**

- Two rounds of interviews with a group of six Year 6 pupils at five different primary schools
- First set of interviews – March 2019
- Second set of interviews – June 2019

## **Classroom data**

- Assessment tasks, lesson presentations, reading extracts, and worksheets in Year 6 and 7.

# Data analysis

Analysis of interviews with pupils



Analysis of classroom data, using text analysis software (Anthony, 2018).

This enables us to identify what the most frequent words are, in each set of data, and then to isolate these in order to examine what their meaning is, and to see which words they occur with frequently.

# Findings – Interviews – 1

Q. What are some of the words that you have learned in English, maths, and science? Are there any words that you find hard?

**Year 6 students:** In general, they find words that have two or more different meanings hard. (**polysemous** words)

**Examples:** mean, volume, concentration.

*Mary\*: it's not just the words it's like learning about what they all mean it's quite confusing*

# Polysemous words in classroom data – ‘mean’

## Key Stage 2

one habitat. What Does Adapted Mean? | 'Adapted' means to adjust to measure angles What do we mean by angle? What are they  
MISCONCEPTION ALERT! While offspring does mean child, it does not mean your partner. What does percentage (%) mean? Converting fractions to percentages\_93 100 34 5  
of invention9 What does this mean? Do you agree? Can you  
invention' What does this quote mean? Invention research: Using Google Slides, using partitioning. What does this mean? Partitioning: 4,379 - 243 Step 1: Partition 24  
? A B 2 What is the mean perimeter of the shapes below? 5  
the Day What is the mean perimeter of the shapes below?  
use BIDMAS What does BIDMAS mean? Santa has some presents in same characteristics, it does not mean that they are identical. There  
mean child, it does not mean that you are only offspring  
talk about inheritance, we often mean things that are passed on  
similar words and what they mean to work out the meaning  
traits. Variation What does variation mean? What causes variation? Inheritance These  
genome. Variation What does variation mean? What causes variation? Inheritance These  
percentages to decimals What does % mean? What is 0.7 as a percentage?  
a partner. What does 'percent' (%) mean? What is 25% as a fraction?  
decimal place. What does this mean? Which two tenths will 7.65 be

## Key Stage 3

the same way. Key Words outlier, mean, line graph, bar chart, pie chart  
granite from the quarry. Calculate the mean mass of granite dug out of  
players is 425kg and the average (mean) mass of ten ballet dancers is 40  
the meaning of  average Find the mean, median and mode from a set  
account the following:  What are the mean, median and mode?  Which is the  
mean 7 and mode 10 3. Three numbers with mean 8, median 10 and range 8 4. Four numbers with  
7.5, mode 6 and median 7 5. Four numbers with mean 6, median 6.5 and range 11 6. Five numbers wi  
following properties? Mode < Median < Mean Mode < Mean < Median Mean < Mode < Median Mean < Median <  
< Median Mean < Median < Mode Median < Mode < Mean Median < Mean < Mode M, M and  
following properties? Mode < Median < Mean Mode < Mean < Median Mean < Mode < Median Mean < Median <  
< Median Mean < Median < Mode Median < Mode < Mean Median < Mean < Mode M, M and  
following properties? Mode < Median < Mean Mode < Mean < Median Mean < Mode < Median Mean < Median <  
< Median Mean < Median < Mode Median < Mode < Mean Median < Mean < Mode Not all of  
Girls Frequency Boys Range: Mean: Median: Mode: 1 2 3 4 5 6 7  
whole numbers with the following properties:  Mean = 4  Median = 3  Mode = 3 Can you find al  
whole numbers with the following properties: • Mean = 4 • Median = 3 • Mode = 3 Can you find all  
Girls Range: Mean: Median: Mode: Do girls have different  
Mode < Mean < Median Mean < Mode < Median Mean < Median < Mode Median < Mode < Mean Median <  
Mode < Mean < Median Mean < Mode < Median Mean < Median < Mode Median < Mode < Mean Median <

## A closer look at 'mean' in classroom data (KS2)

one habitat. What Does Adapted Mean? | 'Adapted' means to adjust to

measure angles What do we mean by angle? What are they

MISCONCEPTION ALERT! While offspring does mean child, it does not mean

your partner. What does percentage (%) mean? Converting fractions to percentages \_93 100 34 5

of invention9 What does this mean? Do you agree? Can you

invention' What does this quote mean? Invention research: Using Google Slides,

using partitioning. What does this mean? Partitioning: 4,379 - 243 Step 1: Partition 24

? A B 2 What is the mean perimeter of the shapes below? 5

the Day What is the mean perimeter of the shapes below?

*Emma: We learned 'mean' in maths. It was in the SATs practice test. I couldn't guess the meaning. We haven't heard 'mean' in maths before.*



# Polysemous words in classroom data – ‘volume’

## Key Stage 2

As the **volume** of music at the school disco became unbearable...

(1 occurrence in the existing classroom data set)

## Key Stage 3

area is known. Calculate the **volume** and **surface area** of a cuboid.  
Contract, diaphragm, lung **volume**, **asthma**. Even when you are sitting  
been compressed into a small **volume**. **B** State what happens to the  
explain how to measure lung **volume**. **Bell jar** **Balloon** (lung) bung rubber  
e, contract, diaphragm, lung **volume** **bone**, **skeleton**, **support**, **protection**  
lungs? Calculate your own lung **volume** **by breathing** as hard as you  
You can measure your lung **volume** **by breathing** into a bottle. Surround  
nd \_\_\_\_ b. Circle the largest **volume**: **c**. Fill in the missing spaces  
Calculating **Volume** Calculate the **volume** of each solid  
eral days before a significant **volume** can be collected. Theory The  
ir your lungs can hold. Lung **volume** can be increased with regular exercise  
Which cylinder has the larger **volume**? **Challenge Card 2** A cylinder

Jacob: *You have volume on TV, but then you come across it in maths. Difficult to understand.*

# Polysemous words in classroom data – 'volume' (KS3)

area is known Calculate the  
ds Contract, diaphragm, lung  
een compressed into a small  
explain how to measure lung  
e, contract, diaphragm, lung  
igs? Calculate your own lung  
You can measure your lung  
nd \_\_\_\_ b. Circle the largest  
Calculating  
eral days before a significant  
ir your lungs can hold. Lung  
Which cylinder has the larger

volume and surface area of a cuboid  
volume, asthma Even when you are sitt  
volume. B State what happens to the  
volume. Bell jar Balloon (lung) bung ruk  
volume bone, skeleton, support, protec  
volume by breathing as hard as you  
volume by breathing into a bottle. Sur  
volume: c. Fill in the missing spaces  
Volume Calculate the volume of each s  
volume can be collected. Theory The  
volume can be increased with regular e  
volume? Challenge Card 2 A cylin

# Polysemous words in classroom data – 'concentration'

Concentration – example explanations from pupils during the interviews

*to focus*

*you're not distracted*

*concentration camp*

*pointing towards one thing*

*when stuff is really high*

# Polysemous words in classroom data – 'concentrat\*'

## Key Stage 2

Harry wished they wouldn't, because he was trying to **concentrate** to find his way to classes.

(1 occurrence in the existing classroom data set)

## Key Stage 3

r unit volume (litre or cubic metre). **concentration** A **measure** of the number of particles in a unit volume of a gas or the air particles are close together. **concentrated** A **solution** is concentrated if it contains a high concentration of a substance per litre than acid B. Acid A is **concentrated**. Acid B is dilute. The concentration of a substance is high concentration to an area of low **concentration**, **across** a **partially** permeable membrane. **concentrated** chloric acid cotton wool soaked in **concentrated ammonia solution** Particles of a substance moving from one area to another is called OSMOSIS! Title: Osmosis **Concentration: Amount of substance** in a particular amount of resistance in the **concentration and death camps**. To resist he had a remarkable amount of resistance in the **concentrated and dilute solutions** of an acid solution. **concentrated** ed with a book but found it hard to **concentrate**, **and just then** the Hopeless Casanova. **concentrated** a high-concentration area to a low-**concentration area**, **for example**, water and the movement of particles from a high-**concentration area** to a low-concentration area. **concentrated** she so effectively have brought the **concentrated attention of millions** to bear upon the camp. **concentrated** 18 huts was built at Sachsenhausen **concentration camp**. **According to** the official records. **concentrated** Hierarchy - Stereotype - Holocaust **Concentration camp** **Back of** your book. No concentration camp. **concentrated** Hierarchy - Stereotype - Holocaust **Concentration camp** **Back of** your books. **concentrated** to death after a trial at Flossenburg **concentration camp**. **He was** hanged at dawn. **concentrated** eeches. He was sent to Buchenwald **concentration camp** in 1937, **but** still managed to survive. **concentrated** minorities. Niemoller was sent to a **concentration camp** in 1938. **He** continued to

# Polysemous words in classroom data – 'concentrat\*' (KS3)

chloric acid cotton wool soaked in concentrated ammonia solution Particles of  
e is called OSMOSIS! Title: Osmosis Concentration: Amount of substance in a pa  
arkable amount of resistance in the concentration and death camps. To resist he  
calis • describe differences between concentrated and dilute solutions of an acid  
ed with a book but found it hard to concentrate, and just then the Hopeless Cas  
a high-concentration area to a low-concentration area, for example, water and  
movement of particles from a high-concentration area to a low-concentration a  
she so effectively have brought the concentrated attention of millions to bear up  
18 huts was built at Sachsenhausen concentration camp. According to the officia  
Hierarchy - Stereotype - Holocaust Concentration camp Back of your book. No  
Hierarchy - Stereotype - Holocaust Concentration camp Back of your books W  
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minorities. Niemoller was sent to a concentration camp in 1938. He continued t

## Findings – Interviews - 2

*Rachel: ...scientific you can't really there might be another word for it but there's only a couple and that's what it is then a formal word is say you have something that you'd say to your mates around school and you're writing something like instructions you have to make it formal as if you're speaking to the Queen*

*John: we've gotten used to saying words like water instead of saying a scientific term*

*Emily: we kind of don't use them in everyday life*

## Findings – Interviews - 3

**Q. Which subjects do you think you will find difficult? Why?**

**Maths:** Algebra because of the use of letters, and word problems.

*Cathy: I don't like word problems because you have to work out what the word problem means as well as actually doing the sums...When you go to secondary school, it gets more complicated.*

**Science:** Scientific terms can be hard to understand. In primary school, they do not learn as many 'hard' words as they will learn at secondary school.

*James: physics and biology I think I'll be not very good at that because we haven't done it before.*

# Other observations from analysis

- Student also find technical words hard.  
**Examples:** fertilization, Australopithecus, parentheses
- The students tend to evaluate their reading as successful if they can pronounce all the words, even if they do not understand the meaning of some of those words
- Over-confidence about understanding certain technical words that have everyday use  
**Example:** energy  
*“the force when something’s happening”*  
*“Energy can be used as a synonym for force”*



## Comparing lesson powerpoints across Years 5-7

- There is a dip in Year 6 lessons presentations in terms of subject content;
- Assessing students' knowledge is most frequent in Year 6;
- Lesson presentations tend to be more task-oriented in Key Stage 3 than in Key Stage 2;
- Organisational text, including 'presenting learning objectives' and 'restating learning objectives' decrease across key stages, except for 'referring to a website'. It seems that students are expected to infer learning objectives at Key Stage 3.

# Early conclusions

How does the language of Key Stage 3 differ from the language of Key Stage 2?

There's a lot more of it. Densely written textbooks and powerpoints, compared to KS2;

A higher frequency of academic words at KS3 than at KS2;

Polysemous words tend to occur more with their domain-specific meanings at KS3 than at KS2;

Technical/subject-specific words that students find hard occur very rarely at both KS2 and KS3;

Information presented differently, for example in teacher powerpoint presentations.

# What should we do about this?

- In our view, the solution is not to dumb down in any way, but to put in language support.
- As the project progresses, we'll have an increasingly clear idea of where the difficulties are exactly;
- The project will generate a list of the vocabulary of KS3 that is likely to be new- or at least, not encountered previously in KS2.
- We will also be able to describe new features of KS3 at the sentence level (more complex grammar), and discourse level (purpose or function of text, organisation of information)

# Looking ahead

Development of the classroom data set with addition of spoken data from lessons (teacher talk)

Focus groups with the same students as they progress through Year 7

Move to smaller groups with more tasks to explore in more depth students' understanding and experience of academic language

# Linguistic challenges of the transition from primary to secondary school

<https://linguistictransition.leeds.ac.uk/>  
@LeedsTransition

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A screenshot of a website with a red header and a white main content area. The header contains the text 'QUICKLINKS' and 'UNIVERSITY OF LEEDS'. The main content area features a large image of an open book with a red cover and white pages. Below the image, there is a paragraph of text describing the project, followed by two more paragraphs of text. At the bottom of the page, there is a Twitter icon and the text 'Follow us on Twitter!'. The footer contains the logos for the Economic & Social Research Council (ESRC) and Lancaster University.

QUICKLINKS

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Linguistic Challenges of the Transition from Primary to Secondary School

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A large graphic of an open book with a red cover and white pages, set against a black background.

We are an ESRC-funded research project based at the School of Education at the University of Leeds, working in partnership with Lancaster University's Centre for Corpus Approaches to Social Science. Led by Professor Alice Deignan, we aim to use methods from corpus linguistics to address a pressing language problem in English schools.

There is lots of evidence that students in England sometimes struggle with the transition from primary to secondary school, and as a result their attainment can 'dip' at the start of secondary school. We believe that one of the potential causes of this 'dip' is language. At the start of secondary school, students may encounter vocabulary, or turns of phrase, or ways of explaining ideas which are very different to the academic language they were used to at primary school.

To explore this problem, we aim to produce the first comprehensive and systematic description of the range of academic language encountered by students at secondary school, with focus on how this differs to academic language at primary school and language outside of school. Our focus is on the academic language that students encounter at school – teacher talk, textbooks, revision guides, etc. – and not the language that students themselves produce.

By identifying and understanding the language differences between primary and secondary school, we will be able to design language development interventions to help facilitate the transition and make things easier for students. We believe that there is an opportunity to reduce the barriers to learning that can arise when students make the important transition from primary to secondary school. This project runs from September 2018 to April 2021.

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