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RESEARCH REPORT

Using oracy to improve disadvantaged student attitudes, engagement, and reasoning

Maliki Konteh

University of Cambridge, United Kingdom

Abstract

Context: The study was conducted in an inner-city secondary school in Eastern England, serving a highly disadvantaged community. The research focused on a Year 10 history class (students aged 14–15), particularly examining students' reasoning skills in discussions. The intervention followed a period of remote learning during the COVID-19 pandemic and aimed to address the language deficit observed in both disadvantaged and non-disadvantaged students.

Aims: The research sought to determine whether an oracy-based learning intervention focused on exploratory talk could improve the reasoning capabilities of disadvantaged students. It also aimed to explore whether fostering oracy could positively impact students' engagement and attitudes, though this aspect is to be reported separately.

Methods: A pilot study identified students' reliance on verbatim reading from textbooks and lack of reasoning in discussions. The intervention included ten research lessons structured around scaffolded exploratory talk, where students engaged in guided discussions with talk roles, modelling, and structured ground rules. Data were collected through classroom observations, audio recordings, surveys, and student interviews. Analysis involved interaction-level discourse coding to track improvements in student talk and reasoning.

Findings: Compared to the pilot, students engaged in more meaningful discussions, demonstrating improved reasoning skills. Exploratory talk increased to 32% of total interactions, with students more frequently justifying opinions, building on others' ideas, and engaging critically. Interviews revealed that students felt the intervention helped them articulate thoughts, debate ideas, and develop confidence. While disadvantaged students showed notable improvement, benefits were observed across all students.

Implications: The research highlights the value of explicitly teaching reasoning through structured talk. Findings suggest that interventions targeting oracy can benefit students in disadvantaged contexts, though the official classification of disadvantage may not fully capture students' linguistic needs. The study also underscores the role of collaborative teacher inquiry in refining pedagogical approaches.

Keywords: history education, oracy, exploratory talk, disadvantaged students, reasoning, student engagement

Context

This research was conducted in an inner-city 11-16 comprehensive secondary school in Eastern England with 800 students enrolled. The school serves one of the most disadvantaged communities in the country (second most deprived decile in the UK) with almost double the national average of disadvantaged students who attract additional government funding. Almost 50% of students have English as an additional language (EAL).

The study involved one Year 10 (14- to 15-year-olds) history class of 15 students. The research took place when students were timetabled to study 'Medicine in WWI' and 'The Weimar Republic'. The class had just come out of the January to March 2021 lockdown remote learning and had previously been recorded for the pilot stage from October to November 2020. The class teacher/co-researcher is an experienced middle leader with whom I conducted this collaborative enquiry.

Motivation, focus and questions

It is often assumed children will naturally learn to use spoken language skills (speaking and listening) from everyday life experience (Mercer et al., 2020), but research disagrees, and like literacy and numeracy, they need to be taught explicitly (Resnick et al., 2015). Many of our students are from disadvantaged backgrounds (students in a situation of economic and/or social deprivation) and regularly underperform at GCSEs¹. I believe this is due (at least partly) to their poor language skills, as research suggests poor language skills and poverty compound academic underachievement (Alexander, 2020). This is what I intended to change by introducing a language-based intervention designed to improve the learning, cognitive development, and hopefully academic performance of disadvantaged students. To achieve this, I sought to increase student use of exploratory talk as it is the type of talk most associated with developing thinking and learning (Mercer & Dawes, 2008).

Before the intervention I conducted a pilot which revealed that some students lacked the language structures and lexis necessary to create functions for reasoning. During discussion tasks, students mainly read textbook extracts and used those verbatim as 'answers' to discussion points. They rarely listened to each other and when they did, they simply agreed or disagreed with each other without reasoning. This language deficit was not exclusive to economically disadvantaged pupils as initially assumed. The class teacher/co-researcher and I set out to address these issues by searching for an answer to the following questions, which became my research questions:

- RQ1 Can an oracy-based learning intervention focusing on exploratory talk affect particular disadvantaged students' reasoning capabilities in my context?
- RQ2 Can the development of oracy affect these disadvantaged students' engagement and attitude?

This report focuses on RQ1 findings only. RQ2 will be reported on in a future publication.

We expected to see an increase in student use of exploratory talk during the intervention because of the support we provided including scaffolding, modelling, guiding questions to structure

¹ GCSE stands for General Certificate of Secondary Education. These are the qualifications obtained by 15 and 16-year-olds in the UK at the end of their secondary school.

the discussions, and **ground rules for talk** (Littleton & Mercer, 2013). These rules engineered the situations by which students had to use the given language structures to do the reasoning.

The success criteria for the effectiveness of the intervention were whether we would see an increase in the use of exploratory talk during student discussions.

Ethical considerations and relationships

The research was conducted in line with the British Educational Research Association guidelines (BERA, 2018) and in compliance with the school's code of conduct. I obtained permission to undertake the research from the principal. I sent a letter to parents at the start of each stage explaining the purpose of the research, the right to withdraw their child, and gave assurances of confidentiality and anonymity (see appendices A and B).

I also talked through the research with students, fielded their questions and regularly reminded them of the voluntary nature of their participation and right to withdraw. I was mindful and reflected on my role as teacher-researcher as I taught them in my own subject. The class teacher was also a co-researcher whose role was essential in the collaborative enquiry process. I worked around her commitments to ensure participation in the research did not put undue pressure on her.

This research was conducted during the Covid-19 pandemic and all rules and regulations were followed to keep everyone safe.

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Inquiry plan and activities

The study consists of two interlinked stages: the pilot and the intervention. The pilot ran for one month and covered eight lessons. I made the conscious decision to divest my thinking of any presuppositions about the type of talk I wished to hear in the pilot, and I only looked for ways students were interacting throughout all eight lessons. All 15 students participated, and of the 29 pair work discussions observed and transcribed across the eight lessons, seven were categorised overall as talk management, six disputational, and 16 as reading aloud textbook extracts. The three types of talk

are defined below with an illustrative extract of each. Appendix C contains additional examples of each:

(a) **Talk management** or transactional talk in which students confirmed or clarified with each other what they had to do for a particular task, as in the following extract:

- A: Wait, are we only using one person? I thought we were allowed multiple.
- B: Yeah, you can!
- A: OK
- B: You've got to do your point, the argument, wait...
- A: Mix these two together, so this one and this, do it together

(b) **Disputational talk** where although students were in pairs discussing they were not working as a pair. They interrupted others when speaking, asserted their views without providing reasons, and did not really listen to each other.

- C: [the diagnosis of] miasma, changed a little didn't it.
- D: No! How?! ... It didn't change at all.
(silence)
- C: influence of the church, yeah, that changed a lot. People didn't think it was God.
- D: (interjects) Yes, they did!

(c) **Reading textbook extracts** aloud to each other to select the most relevant section of texts as answers to questions.

- E: (reading from worksheet) Vesalius strongly believed in the importance of anatomy to allow for successful surgery...
- F: Is that it? ...
- E: (Pointing at a paragraph on a worksheet) Just use these!

The talk management extract illustrates how students regulated themselves in the discussion tasks. The reading from a textbook extract illustrates how students engaged superficially with ideas (pointing and reading sections) and regurgitated or copied what the book said. The interactions in the disputational talk extract show how students disagreed and interrupted each other but do not offer reasons for their views. The disputational talk extract illustrates how students lacked the language tools necessary to say what they seemed to want to say.

I recognised students were not reasoning with each other and that there was an absence of the language used to create functions for reasoning –the (grammatical) structures and relevant lexical items (words).

This language deficit was not exclusive to economically disadvantaged pupils as my colleague and I thought before the pilot. We assumed that students from less disadvantaged households would have more linguistic tools and resources at their disposal. However, most conversations showed similar patterns of deficit whether or not the speaker was from a disadvantaged household. When one considers that the school's catchment area falls in the second most disadvantaged decile

nationally, it is reasonable to infer that most of the students who are officially not categorised as disadvantaged are in fact only marginally better off than those who fall into the category.

With this information, we were able to collaboratively plan the main phase of our research (the intervention). The objective of this phase was to support the students in using the language of reasoning and logic in their discussions by providing models of language that we would expect students with a good command of language relative to their age to be thinking, saying, and using while completing the discussion tasks.

To achieve this, I sought to increase student use of exploratory talk. The conceptualisation of exploratory talk in this study is adapted from Mercer and Dawes (2008) who summarise it as talk in which:

- Partners engage critically but constructively with each other's ideas.
- Everyone participates.
- Tentative ideas are treated with respect.
- Ideas offered for joint consideration may be challenged.
- Challenges are justified and alternative ideas or understandings are offered.
- Opinions are sought and considered before decisions are jointly made.
- Knowledge is made publicly accountable and so reasoning is visible in the talk (p.8).

Implicit in this conceptualisation of exploratory talk is the need for students to listen to each other purposefully.

Intervention Summary

I used what I learned from the pilot as a baseline, from which I was able to make judgements about the kinds of thinking and talk that needed to be developed for the next unit in the curriculum.

I was also able to design a teaching approach, which 'scaffolded' their learning (Wood, et al. 1976, p.90). That is, I did not introduce all the words and all the tasks they needed to do with the words and all the evidence at the same time. Instead, I modelled the words and used them in conversations (which I called 'meaningful discussions') with the class teacher as the students watched and listened. This was done so students could see what they were supposed to do and hear in context the words they were supposed to use to make those meanings.

Then, before setting them off on their own discussions, I introduced ground rules for talk (Littleton & Mercer, 2013). These rules engineered the situations by which students had to use the given language structures to do the reasoning. The aim was to get students using exploratory talk, which is the type of talk most associated with delivering learning. However, on its own, without the ground rules guiding the talk it still risked falling short of learning.

I conducted 10 research lessons (RLs), creating an extended lesson study within the bounds of my case. Each research lesson involved its own cycle of design research where my colleague and I designed each RL to help (especially disadvantaged) students to learn and reason through carefully scaffolded and structured exploratory talk activities. Key methodological aspects were the iterative

nature of each research lesson and the collaborative nature of analysis, planning and teaching/observation.

Below is a pictorial representation of the entire research (the 15 students, three of which were my case pupils², the class teacher/co-researcher and myself as the researcher) showing the unfolding cycle of research lessons, each designed and conducted on the basis of changes made using the findings from our joint analysis of the case pupils (and others') learning in the previous research lessons. Data collection included all 15 students as they all participated in the discussions (not just the three case pupils).

Appendices D and E contain two examples of post lesson analytic discussions and changes adopted in the subsequent research lesson as a result. D is from the first post-research lesson joint analysis and discussion and E is from the eighth. I have highlighted the adjustments in the appendices to show where the changes involved pupil level personalisation.

Operationalising the research

The research required collaborative planning, teaching, observing, and analysing learning and teaching to refine the oracy-based intervention on an ongoing basis. To ensure a smooth operationalisation, I did the following:

- 1) Built time for collaborative planning of research lessons.
- 2) Planned the model meaningful conversations students had to watch before their own speaking tasks.
- 3) Produced conversation guiding questions for students.
- 4) Planned student talk roles (interviewer, interviewee, and moderator).
- 5) Predicted what the three case pupils would be saying in their group discussions.
- 6) Established ground rules for talk including length of time and the language structures they were supposed to use.
- 7) Reconvened with colleague to analyse recordings together, compare notes and interpretations from the most recent research lesson and checked the accuracy of our predictions. Then, we would start the entire process all over again for the next research lesson.

Appendix F summarises all 10 research lessons along with the exact support (scaffolding) given to aid students in their discussion tasks.

² Case pupils typify learner groups in a research class whose learning teachers carefully imagine and predict when collaboratively planning research lesson sequences in which they become reference pupils. These are usually three, and in this research the chosen students were those officially designated as disadvantaged. Our post lesson discussions began by examining what case pupils were observed to have learned compared with what was predicted. This idea was borrowed from Dudley's (2019) Lesson Study Handbook downloaded from www.lessonstudy.co.uk

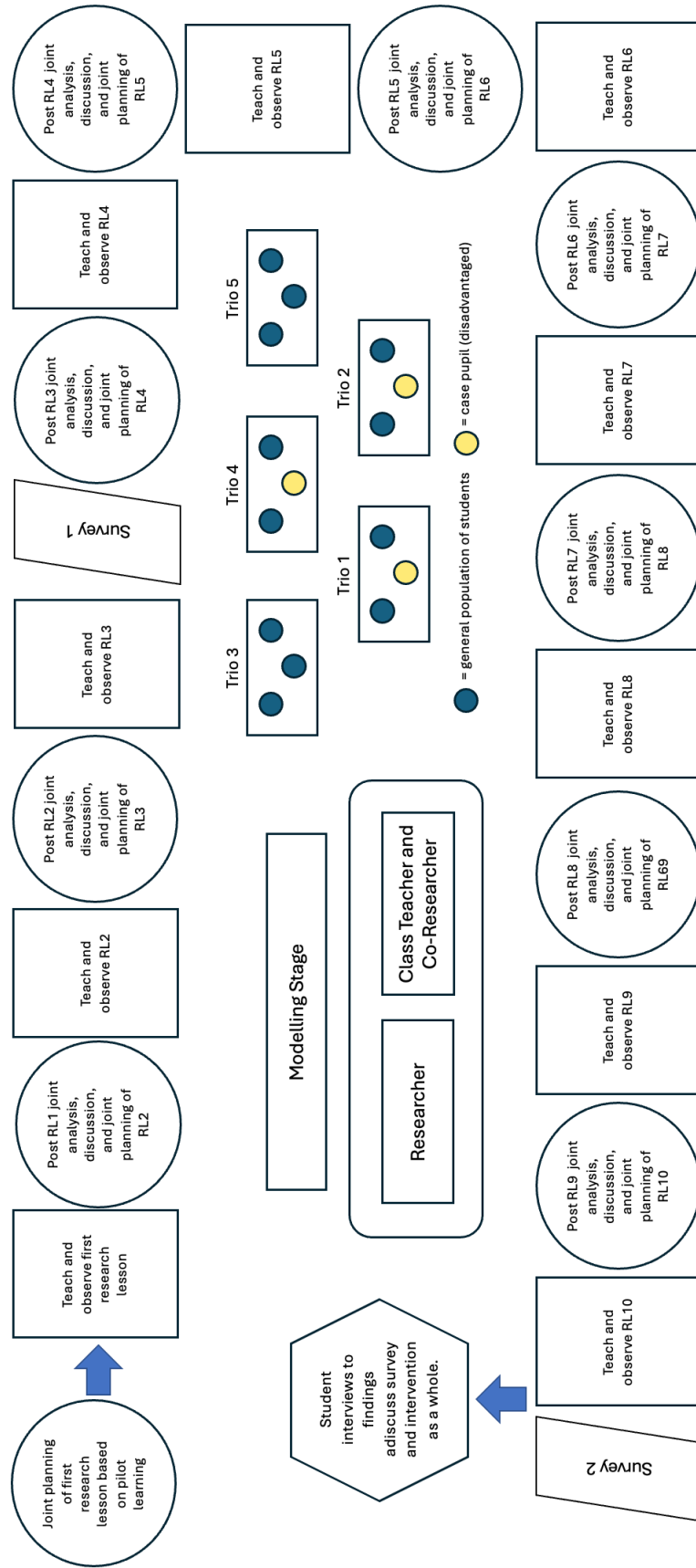


Figure 1: Pictorial representation of the research

Data Collection

Table 1 summarises the methods used to answer each research question. Survey data provided a snapshot of how students perceived their own reasoning capabilities, attitudes, and engagement before and after the intervention. Observations and interviews allowed for these concepts to be understood in more detail, e.g., how they actually reasoned; and how and why they felt about history lessons.

Table 1: data collection methods used to address each RQ

Research questions	Recorded lesson observations	Student surveys	Student interviews
RQ1 'Improved reasoning'	X		X
RQ2 'Impact on attitude and engagement'	X	X	X

I analysed all data considering the aims of the research and to develop recommendations for teachers and leaders at my school. This report focuses on RQ1 findings only. Data from RQ2 will be reported on in a future publication.

To answer RQ1, observations were audio recorded and transcribed prior to applying my interaction-level discourse analysis. I coded all interactions using an adapted version of the T-SEDA coding scheme by Hennessy et al., (2016). I chose to use this scheme because it is a relatively easy-to-use tool by a novice researcher. I also tested the validity and reliability of my coding by sharing it with other practitioners and asking them to use the codes on three separate transcripts (see appendix G).

Findings

My pilot revealed that some students lacked the language structures and lexis necessary to create functions for reasoning. During discussion tasks, students mainly read textbook extracts and used those verbatim as 'answers' to discussion points. They rarely listened to each other and when they did, they simply agreed or disagreed with each other without reasoning.

Data from three different sources (observations, surveys, and interviews) were gathered and analysed to provide a comprehensive answer to the RQs.

What the in-class observations revealed in answer to RQ1:

During the research, I recorded and transcribed each discussion in full and gave each speaker's turn a talk code from the following categories: exploratory talk (EXP), talk management (TME), social talk (ST), and cumulative talk (C), which is the uncritical acceptance and agreement with others. Any turn that did not fit into the talk categories above was classed as 'other' (O).

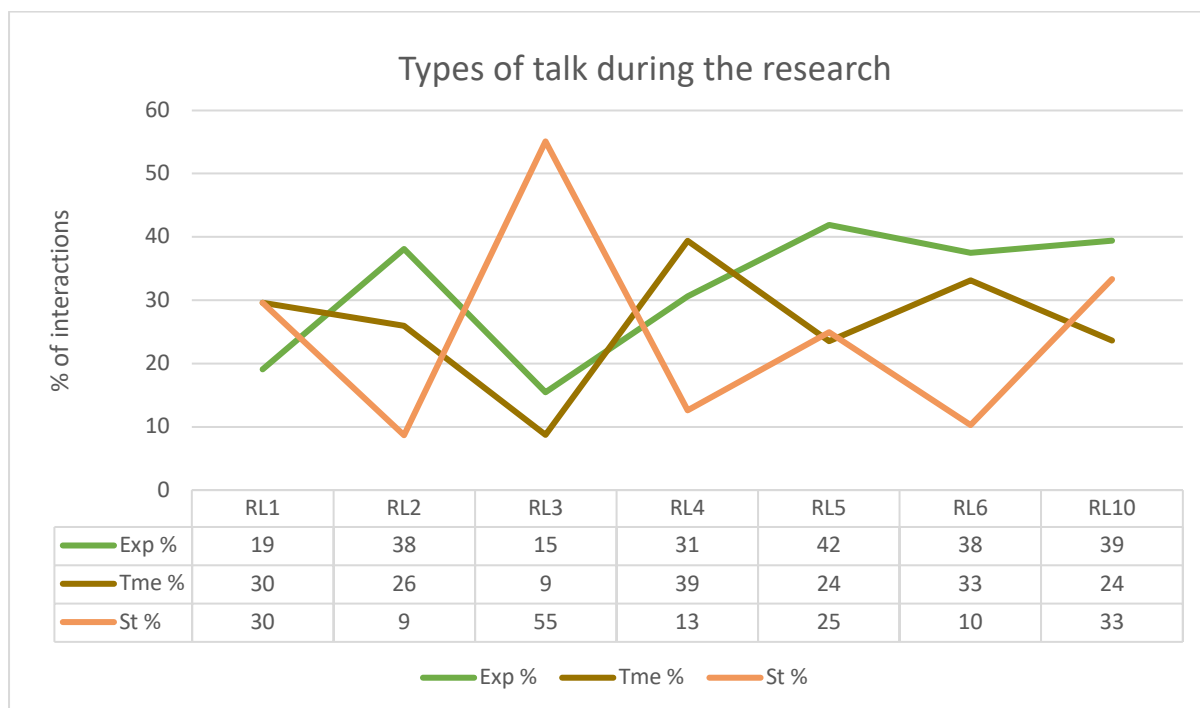
This interaction-level transcript analysis (i.e. speaker turn-by-turn analysis) of the research lesson observations revealed three main types of talk being used by students during the intervention:

- Exploratory talk
- Talk management exchanges
- Social talk (off-task chatter)

My analysis revealed that 32% of observed and transcribed turns during the RLs were exploratory, 26% were talk management, 25% social talk. Other types of talk were cumulative talk at 2% and disputational which featured in 3% of the interactions. Any interaction that did not fit into the categories above was classed as 'other', which was the remaining 12%. See appendix G for definition and examples of talk types.

Chart 1 below shows how the three main types of talk featured in each research lesson reported. Research lessons 7, 8 and 9 have been removed from the chart because of Covid-related absences amongst students during those three research lessons. The abbreviations in the chart stand for exploratory talk (Exp), talk management exchanges (Tme) and social talk (St).

Chart 1: Types of talk during the research

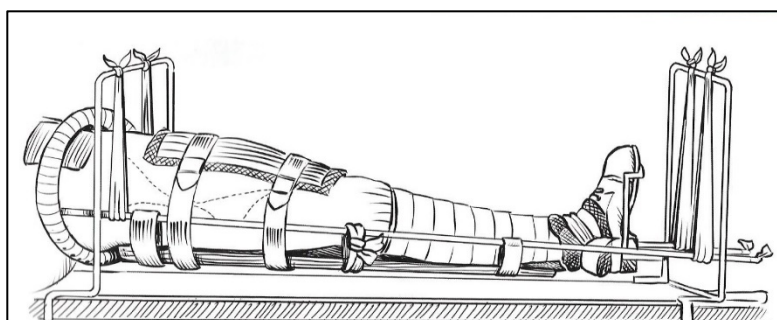


The following transcripts illustrate how students invited each other to reason through questioning; elaborated on each other’s contributions and justified their own views in response to questions in ways that we had not seen in the pilot.

The red highlighting in the transcripts serves two purposes: (a) it illustrates key examples of students’ use of language and reasoning in the RLs; and (b) highlights specific words/turns of phrase that helped me decide the type of talk. The purpose of each turn within the conversations (i.e., the role the interaction performed in the conversation) is also included in the tables under the heading named ‘function’. The abbreviations for the different functions are: (I) for inviting reasoning/asking questions; (S) for suggesting/stating a view based on evidence; (J) justifying a view; (H) hypothesising;

and (E) for elaborating on a previous contribution. Talk management exchanges (TME) had the same name for their function.

Transcript 1: Meaningful discussion from RL4 on how useful the image of a Thomas Splint is to a historian studying the treatment of wounds on the Western Front (image provided as stimulus for student discussion).



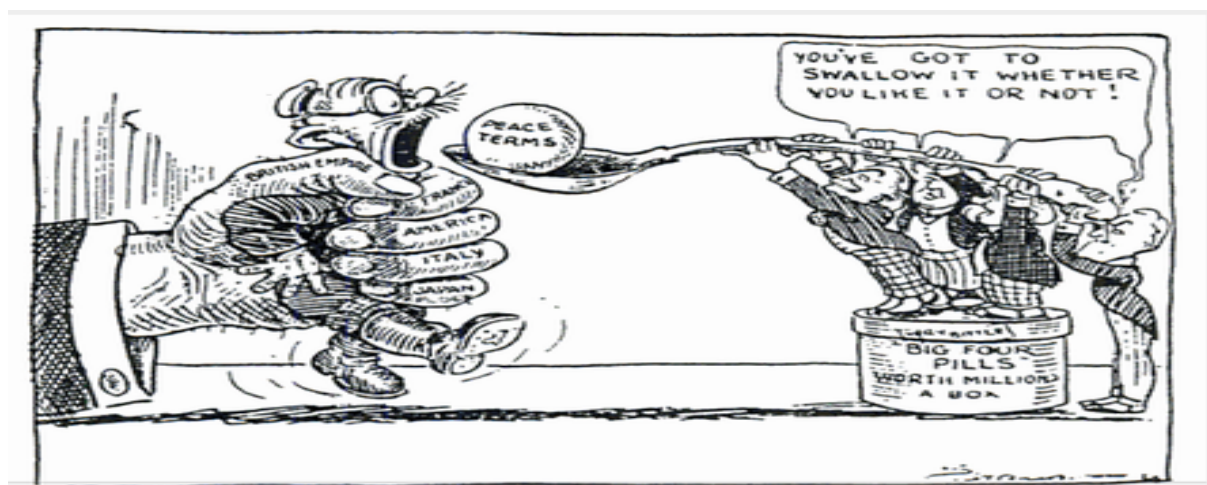
Transcript 1: turn by turn transcript analysis from RL4

Turn n°	Speaker	Turn	Type of talk	Function
1	Student D	What information in the source will help us to find out more about treatments of wounds that were available on the Western Front?	EXP	I
2	Student C	Uh, the photograph shows us how the splint was used, that it was quite-- it would've been quite, sort of, uncomfortable to have and it gives us some context as to how how they would have healed things back in those times when they didn't have as much technology.	EXP	S
3	Student D	Why did you choose that information?	EXP	I
4	Student C	I think it's useful with figuring out how the treatments of wounds that were available on the Western Front.	EXP	J
5	Student D	What is the purpose of the source?	EXP	I
6	Student C	It's to give information about how they would have used the Thomas Splint and how it would have looked to have it on your leg.	EXP	S
7	Student D	What do you know from your own knowledge that agrees with the content of the source?	EXP	I
8	Student C	I already know that , uh back in those- back in those times they would have had very little- very little technology, so it-- this would have been a very revolutionary thing to make, and, um, it would have helped quite a lot with the improvement of broken legs.	EXP	S
9	Student D	We're finished!	TME	TME
10	Student L	[they switch roles] This takes 5 minutes to talk about... are you ready?	TME	TME

Turn n°	Speaker	Turn	Type of talk	Function
11	Student D	Yes, I'm ready...	TME	TME
23	Student L	...What do you know from your own knowledge that agrees with the content and the source?	EXP	I
24	Student D	So, before the Thomas Splint theory was introduced in the war, 9 out of 10 people had died with broken legs. But now with the Thomas Splint only 1 in 10 have died but before if someone had been amputated, they would have died on the battlefield because of the dirtiness of the trenches.	EXP	S

Transcript 1 shows a remarkable difference to discussions from the pilot, where students displayed a lack of the necessary linguistic tools and resources (lexicon and language functions) to suggest or state a view based on evidence (reason), give a reason in support of a view expressed (justify) or illustrate a point by comparing differences. Transcript 2 is from RL5. This one too contains examples of reasoning being done by students.

Transcript 2: Meaningful discussion about the practical implications of the Treaty of Versailles



Transcript 2: Interaction-level transcript analysis sample 2

Turn n°	Speaker	Turn	Type of talk	Function
1	Student B	What do you think led to this situation?	EXP	I
2	Student A	I think it's because Germany lost the war and demands for preparation.	EXP	S
3	Student B	Okay, what are the likely outcomes of this scenario? from your own knowledge?	EXP	I
4	Student A	They [Germany] agreed to the peace terms. [But] it was forced.	EXP	S

5	Student B	Why do these other countries feel they have the right to force Germany to accept this?	EXP	I
6	Student A	Because Germany lost the war and demand for reparation....	EXP	J
7	Student B	How could this have been done differently?	EXP	I
8	Student A	They didn't have to forced it. And it could have been said in a better manner done in a better manner	EXP	H
9	Student B	They could be nicer . Okay.	EXP	E
10	Student B	Why do you think the same thing was avoided at the end of World War II?	EXP	I
11	Student A	They avoided it so Germany wouldn't retaliate, and they didn't want any more problems.	EXP	J

This transcript also shows a clear difference to discussions from the pilot. For example, turn 8 even shows a student going beyond what they had previously done in the pilot by venturing a hypothesis as to what could have been done differently in their view to make the 'pill' of the Treaty of Versailles more palatable to Germany.

Summary of what the in-class observations revealed in answer to RQ1:

In response to RQ1, my interaction-level transcript analysis suggests that there was a change in some students' reasoning when compared to the pilot. They were using talk more effectively and in ways we had not seen before the research lessons. Discussions were more 'meaningful' as students listened to each other, reasoned together and justified views.

What the interviews revealed in answer to RQ1:

I now turn to the interview findings, which was the final data source to answer both RQs. This was planned to get students views on the entire research. The original plan was to interview the three case pupils and any outliers from the survey analysis. However, due to absences on the day, I chose the following students: student A (white British female); student C (white British male and outlier from survey analysis); and student D (non-white British male). I interviewed C and D together to make it less intimidating, and A individually at her own request. The interviews were audio recorded, transcribed, and thematically analysed.

I could not make a justified causal link from the evidence above between the intervention and student improved reasoning. However, my analysis of the interviews did reveal evidence suggesting that the three interviewed students themselves thought there was a causal link between the intervention and the improvements observed.

The interviews captured the most compelling and exciting findings from this research. The responses vividly illustrate students thought the improvements observed were a direct result of the intervention and were not chance. In the following pages I interpret selected interview extracts illustrating two of the three themes emerging in interview responses:

- a) Views on the research lessons and intervention
- b) Listening to and benefitting from others

c) Attitude & engagement is reported on in a separate publication as it pertains to RQ2

Views on the research lessons and intervention

This first interview section aimed at getting students' views on the entire research. This information is presented in table 2 below. The red highlighting are the specific sections in the quotes that helped me organise responses into each theme and that were most revealing of the points being made by the students.

Table 2: Interview theme A – student views on research lessons, the intervention, and my theoretical and analytical interpretation.

Theme A: Student views on research lessons and intervention	Theoretical and analytical interpretation
<p>Student A: Now it's easier to answer. To put your words into, you know? Whereas before it was all a little bit jumbled.</p> <p><u>Student C</u>: 'I think it [the intervention] impacted me positively because I'm more able to debate my opinion and my ideas with other people.</p> <p><u>Student D</u> 'I know, it's good, because when you were getting asked the questions, you think and interpret the question, and then actually give out a good answer with facts that back it up'.</p>	<p>These three quotes from students A, C and D allude to the positive impact the intervention had on their <u>use of language and reasoning</u>, which were key objectives in our research. Student A finds it easier to structure her thoughts into coherent speech that is not jumbled up because of the intervention. This point is also echoed by student C who claims being better able to debate his opinions and ideas with others. Relatedly, student D feels the intervention helped him give reasons in support of his views in conversation. These are all very important claims because it was these areas (holding logically structured evidentiary discussions and providing reasons in support of views) that we identified in the pilot as being a weakness for our students, and exactly what we set out to address.</p>
<p>Student A: 'This structure thing [guided discussion] I'll be like this! And they'll be like, why? So obviously, then you give your opinion. So, it's like you HAVE to'.</p>	<p>In this quote student A gives a very revealing description of how the engineering we put into the <u>ground rules for talk</u> in the structuring of the discussion forced students to use reasoning language and thought. The class teacher/co-researcher and I understood this as a clear sign of the effectiveness of our ground rules in facilitating thinking and learning through talk.</p>

Listening to and benefitting from others

The pilot revealed that students rarely listened to each other during discussion tasks. In our research lessons we made listening part of our ground rules. The table below contains selected quotes where students gave their views on listening to and benefitting from others during discussions along with my theoretical and analytical interpretation.

Table 3: Interview theme B – student views about listening to and benefitting from others, and my theoretical and analytical interpretation.

Theme B: Listening to and benefitting from others	Theoretical analytical interpretation
<p>Student A: 'I feel like I learnt from others, especially from [student B]'</p> <p>Student C: 'You feel like you're helping other people without them having to ask you'.</p> <p>Student D: 'When you're listening, your peers could tell you a fact or information that you couldn't have known or didn't know. And then you learn'.</p> <p>Student A: 'I do feel more confident now after that [the intervention]'</p> <p>Student D: I guess my confidence did improve? Because usually, I wouldn't be speaking as much in this sense.</p>	<p>In these quotes students refer to the <u>collaborative learning</u> environment created in the discussion tasks. This is a very important change when compared to how they conducted discussions in the pilot. The contrast here is brought again by the ground rules that forced everyone to listen to others attentively. The quote from student D illustrates the point very eloquently.</p>

Overall, students had positive views of and were complimentary about their learning experiences during the intervention. They felt it helped their confidence, their ability to hold meaningful and evidentiary discussions, they became better listeners and learnt from each other. They were also more likely to add constructively to what their peers said. These aspects also had an impact on their attitude and engagement as many felt safer and less anxious when contributing an answer publicly after having practised in their talk roles. They also thought lessons were more enjoyable as they had a chance to both discuss and write.

Summary of findings

In a nutshell, findings are that, in response to RQ1 (Can an oracy-based learning intervention focusing on exploratory talk affect particular disadvantaged students' reasoning capabilities in my context?), observation and interview data analysis suggest our oracy-based learning intervention improved student reasoning capabilities.

Although these improvements appeared to be more pronounced for students officially recognised as disadvantaged by government standards, it is important to emphasise that other students also made improvements. Indeed, the three students I interviewed (none of whom were disadvantaged) provided clear, cogent, and unambiguous accounts of how they learned. Their accounts strongly supported what our observations and survey data suggest as well as what the theoretical literature of sociocultural learning upon which I based this research suggest would happen.

The most striking finding in this research is that the descriptions of the learning experienced by the three interviewed pupils closely match processes described by Mercer (Littleton & Mercer, 2013), when students think together through exploratory talk that has been engineered to create reasoning-thinking and reasoning-language by modelling of examples in practice, and by the ground rules of the structured discussions.

The interviews are vivid and clear accounts of the way this ‘interthinking’ almost forces the reasoning-thinking and reasoning-language to happen while at the same time making the student feel like a listened-to, valued member of a group and that gave them what they described themselves as confidence to speak and explore ideas –and even to do so in front of the whole class.

Changes to practice

The immediate impact of this research in my school has been the realisation at senior level of the benefits of collaborative enquiry in terms of student (and teacher professional) learning. However, despite the clear benefits, we knew it would be unrealistic to expect our model to be adopted school wide. Especially when considering we had to meet at 9PM once the class teacher/co-researcher’s children were in bed during this study to do the lesson analysis, make improvements to the intervention and plan the next lesson.

So, in terms of changes in practice, I took elements of this enquiry and integrated them in department meetings, where colleagues were asked to come prepared with their lessons for the next day, and did what we called ‘deliberate practice’. That is, each member would give us the context of the class they were to teach the following day and proceed to ‘teach’ us (colleagues) their lesson. In turn, we listened and adopted the role of a student in that class and after the delivery we took the role of critical friend and suggested improvements based on what we saw them deliver to us and considering the context of that particular class. This improved lessons before they were taught as we could all pool together our knowledge and understanding to improve the learning (and teaching).

Our focus on student reasoning also highlighted the imperative for teaching oracy in our school which again we implemented in our curriculum for MFL by getting students in groups of three and asking them to research information of a country where the language they learn is spoken, and present to the class (in English). We set ground rules that ensured each member of the group took charge of a section of the presentation and spoke (not read from a slide) to fellow students. This required students to work together, listen to each other, practise in small groups and then present. We also provided them with a model presentation as an example. The focus was on speaking but also body language and eye contact with the audience. The students reported how much they enjoyed doing presentations and that it boosted their confidence. The main selling-point was that no matter what students plan to do for a living in the future they would need to work with people and be able to communicate effectively and this type of work in school helped prepare them for their future.

Implications for practice

An important piece of learning from this research is that though useful, it has been difficult to use the official government guidelines labelling students as ‘disadvantaged’ or ‘non-disadvantaged’. As the school serves the second most deprived decile in the country, the students who were not

classed as disadvantaged were only marginally better off financially than those who went over the government threshold. This meant that we were not comparing our officially designated 'disadvantaged' students with a nationally representative sample of non-disadvantaged students, but in fact with only slightly less disadvantaged students.

In our context, therefore, the official labelling of disadvantaged students needs to be more nuanced to reflect the community we serve. A potential solution could be for schools or the DfE to collect parental professional background and employment information in admissions forms to enable schools to have some indication of financial status. Such a strategy would allow school leaders, researchers, and practitioners to fine-tune and target interventions to support those most in need.

Another issue was the multiplicity of student categories teachers and leaders have to work with in schools. Using all of them meant that many students were cross-sectional (members of two or more categories simultaneously), which made comparison difficult. I decided to report on disadvantage, ethnicity (white British or not), and gender because this would attract the interest of decision-makers concerning potential investment in approaches that could help improve the attainment of disadvantaged learners.

Reflective evaluation of the process and next steps

The most useful learning point for me came from the diagnostic analysis of the initial conversations in the pilot. Listening to those conversations, transcribing, and analysing them gave me a powerful insight into how children learn. Indeed, it was the pilot (and my own experience in multilingual classrooms as a multilingual person) that enabled me to develop the kind of 'map' for how to support students with the precise structures and functions they were going to need to use in the intervention.

In terms of my own professional learning as a teacher, another critical learning point for me came from the collaborative enquiry I was able to do with the class teacher and co-researcher. Jan Vermunt (Vermunt et al. 2019; Dudley, Xu, Vermunt and Lang 2019) has proposed that teachers change their practice and curriculum most when they engage in 'meaning oriented learning' which is messy and involves studying children's learning by collaboratively watching and listening to them, looking at their work and comparing it to work in the past, looking at the curriculum that has to be learned and thinking about their potential – then designing learning that is informed by all this complex knowledge as well as (in the case of my research) theoretical knowledge. Indeed, my colleague and I were enabled through our research cycles to engage in repeated cycles of meaning oriented teacher learning that have helped us see things we could only guess at before and that it is likely to change our practice and to influence others as well.

As I intend to conduct further similar research, I made sure I included the category of disadvantaged pupils for ecological and consequential validity. I did so because it would allow me to press a button with senior leaders, who would in turn press the same button with evaluators in my school's wider educational Trust when arguing for and justifying the further study and potentially the involvement of more staff in this form of professional development (that also doubles as curriculum development). Indeed, findings from large meta-studies indicate that when this form of collaborative

teacher enquiry-based learning is extended across the staff of a whole school, it leads to very large effect sizes and builds growing capacity for further improvement as more staff get skilled in it (Hattie, 2009; Robinson et al., 2009).

The oracy-based learning intervention in this research appears to have created the necessary learning conditions to have a positive effect on student reasoning. This effect was seen on disadvantaged students as recognised by the DfE, but also on non-disadvantaged.

This effect was seen in the observations with the kinds of talk students were using in the research lessons compared to the pilot, which I cross-checked with interview data, and that too supported the positive effects of the intervention seen in the observations from the students' own perspective. Student's own accounts strongly supported what the observations suggested. That is, our oracy-based learning intervention affected students' reasoning in our context, whether they were officially disadvantaged or not.

The promise of this research (even with only a small sample) suggests that further, similar research should be conducted across a larger sample to see if similar student accounts result, which would allow stronger claims to be made for the efficacy of such interventions and pedagogical approaches.

Finally, appendix H summarises the stages and challenges researchers may encounter while conducting similar research and how I overcame some of these challenges.

References

- Alexander, R. J. (2020). *A dialogic teaching companion*. Routledge.
- Anastasi, A. (1976). *Psychological testing* (4th ed). Macmillan.
- British Educational Research Association [BERA] (2018) Ethical Guidelines for Educational Research, fourth edition, London. <https://www.bera.ac.uk/researchers-resources/publications/ethicalguidelines-for-educational-research-2018>
- Dudley, P. (2019). Lesson Study: A Handbook <https://lessonstudy.co.uk/lesson-study-a-handbook/>
- Dudley, P., Xu, H., Vermunt, J. D., & Lang, J. (2019). Empirical evidence of the impact of lesson study on students' achievement, teachers' professional learning and on institutional and system evolution. *European Journal of Education*, 54(2), 202–217. <https://doi.org/10.1111/ejed.12337>
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
- Hennessy, S., Rojas-Drummond, S., Higham, R., Márquez, A. M., Maine, F., Ríos, R. M., García-Carrión, R., Torreblanca, O., & Barrera, M. J. (2016). Developing a coding scheme for analysing classroom dialogue across educational contexts. *Learning, Culture and Social Interaction*, 9, 16–44. <https://doi.org/10.1016/j.lcsi.2015.12.001>
- Littleton, K., & Mercer, N. (2013). *Interthinking: Putting talk to work*. Routledge.
- Mercer, N. (2019). *Language and the joint creation of knowledge: The selected works of Neil Mercer*. Routledge.

- Mercer, N., & Dawes, L. (2008). The Value of Exploratory Talk. In N. Mercer & S. Hodgkinson, *Exploring Talk in School: Inspired by the Work of Douglas Barnes* (pp. 55–72). SAGE Publications Ltd.
<https://doi.org/10.4135/9781446279526.n4>
- Mercer, N., Wegerif, R., & Major, L. (2020). *The Routledge International Handbook of Research on Dialogic Education* (N. Mercer, R. Wegerif, & L. Major, Eds.; 1st ed.). Routledge.
<https://doi.org/10.4324/9780429441677>
- Resnick, L. B., Asterhan, C. S. C., Clarke, S. N., & Asterhan, C. S. C. (Eds.). (2015). *Socializing Intelligence Through Academic Talk and Dialogue*. American Educational Research Association.
- Robinson, V. M., Hohepa, M. K., & Lloyd, C. (2009). *School leadership and student outcomes: Identifying what works and why: best evidence synthesis iteration (BES)*. Ministry of Education.
- The Glossary of Education Reform. (2016). *Student Engagement*.
<https://www.edglossary.org/student-engagement/>
- Vermunt, J. D., Vrikk, M., van Halem, N., Warwick, P., & Mercer, N. (2019). The impact of Lesson Study professional development on the quality of teacher learning. *Teaching and Teacher Education, 81*, 61–73. <https://doi.org/10.1016/j.tate.2019.02.009>
- Vygotsky, L. S. (1986). *Thought and language* (Translation newly rev. and edited). MIT Press.
- Wells, G. (1999). *Dialogic Inquiry: Towards a Socio-cultural Practice and Theory of Education* (1st ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9780511605895>
- Wood, D., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving *. *Journal of Child Psychology and Psychiatry, 17*(2), 89–100. <https://doi.org/10.1111/j.1469-7610.1976.tb00381.x>

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Appendix A: Pilot Letter

	Principal: 
	PA to the Principal: 
	  
	Telephone: 
	Email: 
	Website:   
Ref: 	
5 October 2020	
Dear Parent/Carer,	
<u>RE: Data collection trial</u>	
I am writing to inform you that we will be trialling a variety of data collection methods to improve teaching and learning in our school. Your child's GCSE History class is one of the selected groups. The trial will involve audio/video recording of some classroom situations.	
Please do not hesitate to get in touch if you would like to know more about this exciting initiative.	
Yours sincerely,	
	
Mr M Konteh	
Standards and Progress Lead for English, MFL and Literacy	

Appendix B: Intervention Letter

Appendix B: Intervention Letter

Principal: [REDACTED]

PA to the Principal: [REDACTED]

Telephone: [REDACTED]

Email: [REDACTED]

Website: [REDACTED]



Ref: [REDACTED]

10 May 2021

Dear Parent/Carer,

RE: Consent

I am completing a Master of Education degree at the University of Cambridge, and my area of focus is student engagement, reasoning and attitude to learning. I will be introducing teaching strategies to help develop students as confident and articulate speakers, whilst deepening their understanding in History.

Some activities will be audio or video-recorded, and I will interview some students to get their views. There may also be questionnaires. The lessons will cover the part of the curriculum that is timetabled for this term and next, so there is no disruption to the GCSE course being taught.

Your child's participation is entirely voluntary, and they may withdraw from the study at any time. All participants' information will be identified by a code to ensure anonymity. Additionally, recordings and documents will be kept on a password protected computer and will be utilised in line with GDPR regulations. Results will be written up and submitted in the form of a Masters' thesis to the University of Cambridge. A copy of this write-up can be forwarded to any interested party upon request.

Please do not hesitate to get in touch if you would like to know more about this exciting initiative, or if you would like to withdraw consent of your child's participation in this research.

Yours sincerely,



Mr M Konteh

Standards and Progress Lead for English, MFL and Literacy

Type of talk: Reading textbook extracts

Appendix C: Talk types found in the pilot.

The red highlighting in the extracts represents the most salient features within the illustrative dialogue.

Type of talk: Talk management

Context: discussion about who had the biggest impact on medical training in the renaissance

A: **Wait, are we only using one person? I thought we were allowed multiple.**

B: Yeah, you can!

A: OK

B: You've got to **do your point, the argument**, wait...

A: **Mix these two together**, so this one and this, do it together

B: This is just extra evidence, and this is explaining the impact.

A: OK [pointing at section in textbook], so this is the evidence, this is the impact, **so you do the evidence of it and how that helped**

B: Hmm... **so how do we start?**

A: I partially agree that individuals had the biggest impact on medical training in... or do you want me to just use that [pointing]

B: Are we allowed?

A: **I think we'd be allowed because** it's just a simple point...

Type of talk: Disputational talk

Context: discussion about change and continuity in ways of diagnosing illness from Medieval to Renaissance.

C: [the diagnosis of] miasma, **changed a little didn't it.**

D: **No! How?!** They both thought it was miasma! I mean... they did a bit more, but... I put the ideas are the same because they both thought it. **It didn't change at all.**

(silence)

C: influence of the church, yeah, that **changed a lot. People didn't think it was God.**

D: (interjects) **Yes, they did!**

C: Look, here, (pointing at section in extract) most people now recognise that God did not send diseases; that changed a lot!

D: Yeah, that changed a lot because first they thought it was literally... a lot

Type of talk: Reading textbook extracts

Context: discussion of key developments in medicine during Renaissance

- E: **(reading from worksheet)** Vesalius strongly believed in the importance of anatomy to allow for successful surgery...
- F: So, what are we supposed to write?
- E: We're supposed to write about the developments made by Vesalius.
- F: Is that it?
- E: **(Pointing at a paragraph on a worksheet)** Just use these! Yeah, medicine!
(They both copy)
- F: **basically, we're copying the highlighted bits.**

Appendix D: Post RL1 joint analysis, discussion & planning of RL2

1. Contextual information

- a. Topic: The historic environment: medicine in WW1
- b. Length: 3 weeks
- c. Challenge: collapsed subjects left-over students joined the group. Change in dynamics. Consent forms to be updated.

2. What was the plan for RL1?

RL1 was the first day back after half term and also the first day of Ramadan 2021. We had a new seating plan reflecting the new talk trios for the oracy-based learning intervention. Each case pupil was in a separate trio and had a recorder in front of them for the lesson. The three case pupils were all disadvantaged and they were students M, Y and L. We talked about ground rules to be adhered to, explained talk roles (interviewer, interviewee, and moderator) and the class teacher and I modelled a meaningful conversation.

Meaningful discussion plan:

The RL1 discussion plan was to review a source about injuries of wounded soldiers and reflect on its content.

Key guiding questions: How useful is the source? Why is the source limited?

Model meaningful conversation script:

It was useful because it was a diary entry from a nurse from the Western Front, called Edith Appleton. It gives examples of problems and the types of injuries faced.

The source is limited because it has only one person's point of view and the greatest limitation is that it's about the battle of the Somme, which was the bloodiest of all in WW1.

3. What were the agreed predictions for RL1 and what actually happened?

Predictions for RL1:

- **Student M:** To listen to partners in trio but not participate
- **Student Y:** To explain the usefulness of the source but not able to explain why.
- **Student L:** To be able to explain usefulness of the source and explain why even though the reason might not be entirely convincing.

Analysis of observed learning:

- **Student M's** recorded participation was minimal. She looked lethargic, probably because of fasting. Student M only engaged in transactional talk (e.g., What is the date? Or What time is it?)
- **Student Y's** recorded talk was all off-task chatter about a recent holiday.
- **Student L** participated in the discussion task, but this was minimal and tried to avoid being heard properly by the recording device.

4. What other aspects are noteworthy from the previous lesson?

- New seating plan, first day of Ramadan and first day back to school after half term delayed proceedings
- General lack of focus
- Discussion time too short at the end of the lesson
- Modelling conversation by class teacher/co-researcher was too long
- Ground rules and talk roles misunderstood
- Inconsistent quality of talk (e.g., some students answered key questions in one word while others gave longer answers)

5. What are the adjustments for the next RL based on the above?

- Ground rules to be reintroduced, kept on display, and insisted upon
- Model discussion by class teacher/co-researcher made shorter and more interactive (Q&A style), as opposed to a monologue after an opening question.
- Discussion given minimum timings (relevant to task)
- Guiding questions to be printed and available on student desks rather than displayed
- Talk roles displayed on screen at all times with student names under the relevant role they are to carry out. Switching roles only happens when I show the next sequence (see examples below)

Round 1: 2 minutes

Interviewer	Student C
Interviewee	Student L
Moderator	Student D

Round 2: 2 minutes

Interviewer	Student L
Interviewee	Student D
Moderator	Student C

Round 3: 2 minutes

Interviewer	Student D
Interviewee	Student C
Moderator	Student L

GROUND RULES

Clear

- Clear desks

Identify

- Identify your talk role for each round and carry out in full as exemplified.

Time

- Keep an eye on the timer

Focus

- Focus on discussing (not writing)

6. Do you have any pupil specific adjustments to make based on the previous RL?

- Researcher to sit down next to student M and highlight key elements in the guiding questions and rephrasing them to her where there might be a lack of understanding and giving her sentence starters she could write down before discussion time (taken from the model discussion script below)
- Moving student Y's trio to the front closer to teacher's desk and class teacher and co-researcher to work with group during discussion task as 'support interviewer/interviewee/moderator' to support student Y carry out each role.

7. What is the lesson plan for the next RL?

RL2 continues and builds on RL1. It is still about the usefulness of a historical source but this time students are given multiple sources which they need to compare, evaluate and decide which is more useful to a historian investigating treatments available during WWI and give reasons why.

Meaningful discussion plan:

Compare, evaluate, and decide what source is more useful to a historian investigating WWI treatments and why.

Key guiding questions for source A & B

Source A questions:

- Who wrote source A? What was their job?
- Why did they write this document? How useful is it?
- What were the most common injuries? How do we know this?
- What does the source not tell us?
- What facts do you know that support what the source says?

Source B questions:

- What type of source is B? Who was it produced by?
- Why would anyone produce this source?
- What does it tell us?
- What does it not tell us?
- What does this source link with from your previous knowledge?
- What is your overall judgment of the sources?

Ideas from partners:

Listening to _____ I picked up the following point(s) of interest:

Listening to _____ I picked up the following point(s) of interest:

Model meaningful discussion script (Source A):

- Who wrote source A? What was their job?
- Source A **is** a diary entry **produced by** a nurse, Edith Appleton, who worked on the Western Front in 1916.
- Why did they write this document? How useful is it?
- Their **purpose** was personal reflection. However, these entries were published by her family to inform. The source is **useful** because it is a first-hand account as Edith, the writer, was present in the battlefield.
- What were the most common injuries? How do we know this?
- **I learn from the source** that many injuries were horribly bad wounds which Edith described as “crawling with maggots”.
- What does the source not tell us?
- The source is **limited** because Edith was describing the arrival of wounded soldiers in the first stages of the Battle of the Somme.
- What facts do you know that support what the source says?
- From **my own knowledge** I know that this was one of the bloodiest battles of the war, but it is not necessarily typical of all battles during WWI.

Model meaningful discussion script (Source B + comparison):

- What type of source is B? Who was it produced by?
- Source B **is** a photograph, and we do not know who it was **produced by**
- Why would anyone produce this source?
- The **purpose** was to inform, possibly people at home.
- What does it tell us?
- It **tells us** that casualty clearing stations were very limited and exposed and care was provided outdoors.
- What does it not tell us?
- The source is **limited** because it does not provide us with any data, and you have to rely on inference.
- What does this source link with from your previous knowledge?
- From **my own knowledge** I know that there were a wide variety of injuries treated by medical staff, but this is not entirely clear what these are from the photograph.
- What is your overall judgment of the sources?
- **Overall**, both sources add value to the inquiry about common injuries treated by medical staff because they provide **evidence** in written and pictorial form. Source A is however **more useful because** it lists the most common injuries treated by medical staff on the Western Front.

8. What are the agreed predictions for the case pupils for the next RL based on the plan above and the adjustments? (Disadvantaged pupils: students M, Y and L)

Predictions for RL2:

- **Student M:** To listen and ask partners the guiding questions. When doing role of interviewee to be able to answer source A with pupil specific support given by researcher.

- **Student Y:** To be able to conduct interviewer and moderator roles without support and to answer questions as interviewee with prompts and support given by class-teacher/co-researcher.
- **Student L:** To be able to carry out all three talk roles well but responses as interviewee might need rephrasing.

Appendix E: Post RL8 joint analysis, discussion & planning of RL9

1. Contextual information

- a. Topic: The place of women in Germany after WWI (RL8); the political, social and economic impact of reparation repayments to allies in 1923 (RL9).
- b. Length: 4 weeks
- c. Challenge: Most 'scaffolding' to support discussion tasks removed by now (e.g., no guiding questions; no model meaningful discussions).

2. What was the plan for RL8?

Students had learnt about the place and role of women in German society after WWI in the previous lesson. For RL8 Students were given three different sources (magazine, newspaper article and memoirs), which they needed to read and interpret how German society had changed since 1914, based on the three sources.

Meaningful discussion plan:

Read the sources and interpret how German society has changed since 1914.

Key guiding questions: N/A

Model meaningful conversation script: N/A

3. What were the agreed predictions for RL8 and what *actually* happened?

Predictions for RL8:

- **Student M:** To be able to describe what is represented in the sources but fall short of interpreting how that explained a change in the role of women in society.
- **Student Y:** To talk about what women did before WWI, and what they were doing after WWI. We expected her to be able to do this based on what information the sources provided but still struggle to make the connection to the bigger picture of social change and reasons why.
- **Student L:** We expected him to be able to talk about the new role of women in society based on the information in the sources and talk about women having a voice in Germany after the war. However, he would need to be prompted with questions if we wanted him to talk in depth about women having made themselves a new role in society (e.g., because they worked outside the house when the men were fighting and now enjoyed the financial independence that came with it and were now no longer prepared to go back to being at home only. And the fact that they also saw themselves as different to the generation of their mothers).

Analysis of observed learning:

- **Student M** was absent.
- **Student Y's** contributions were close to the predictions. She was able to talk about each source in isolation and the fact that there was a cultural revival in Germany and things had improved for women. However, she was not able to give reasons behind the change and perceived improvement for women.

- **Student L's** contribution to the discussion task was better than we thought he would be able to do without guiding questions. He talked about the context, dates of publication of sources and how there was a cultural revival in Germany, and that it was the greatest period of experimentation in the whole of German history. He was able to identify an important point in the cultural revival, which is that literature, writers, and artists flourished, and the impact this had across all aspects of German society, including the role and position of women. He was also able to pick up on the fact that WWI was a turning point as he compared the role of women in 1913 and then in 1920.

4. What other aspects are noteworthy from the previous lesson?

- Students regulated themselves in the discussions without us giving explicit talk roles (e.g., they gave each other instructions for what to do and shared their interpretations with each other).
- Ground rules were adhered to despite not being on display (we referred to them at the start)
- Students are more comfortable with discussion tasks and require little support to conduct 'meaningful discussions' in their talk trios and most views shared are supported with evidence.

5. What are the adjustments for the next RL based on the above?

- Ground rules were mentioned in the previous RL but not kept on display. In RL9 they will not even be mentioned unless the discussions derail.

6. Do you have any pupil specific adjustments to make based on the previous RL?

- Class-teacher/co-researcher to sit next to student M and give her sentence starters aimed at triggering reasoning-thought necessary (e.g., I can infer from the text that the German economy in 1923 was bad because... And an example from the text that supports this is where it says...)
- Researcher to sit with student Y and ask key questions to probe understanding and support reasoning (e.g., What is hyperinflation? Why would people carry money in wheelbarrows in this picture of 1923? Why are children given notes to play with when people are starving?)

7. What is the lesson plan for the next RL?

In this lesson students have to discuss why 1923 was such a bad year for Germany. The context will be covered in a short text which they will read, they will watch a video and key terminology will be introduced (The Ruhr, hyperinflation, invasion, reparations, etc.)

Meaningful discussion plan:

What can you infer from the text you read about the state of the German economy which made 1923 a bad year?

Key guiding questions N/A

Model discussion: N/A

8. What are the agreed predictions for the case pupils for the next RL based on the plan above and the adjustments? (Disadvantaged pupils: students M, Y and L)

Predictions for RL9:

- Student M: To be able to talk about the difficult conditions for the average German citizen that made 1923 a bad year (e.g., people turning to dead horse on street for meat, malnourished children, etc.) and why France and Belgium invaded the Ruhr (late repayments of reparations).
However, she is unlikely to be able to identify the exact reasons behind hyperinflation or why the German currency became worthless.
- Student Y: To be able to talk about the difficult conditions for the average German citizen that made 1923 a bad year (e.g., people turning to dead horse on street for meat, malnourished children, etc.) and why France and Belgium invaded the Ruhr (late repayments of reparations).
She will identify some reasons that contribute to hyperinflation but not all.
- Student L: To be able to talk about the difficult conditions for the average German citizen that made 1923 a bad year (e.g., people turning to dead horse on street for meat, malnourished children, the strikes, etc.) and why France and Belgium invaded the Ruhr (late repayments of reparations).
He will also be able give reasons for hyperinflation and the collapse of the German currency.

Appendix F : Summary of each research lesson and exact support given to aid discussion

Research lesson n°	Summary of lesson	Discussion task support
1	<p>In this series of lessons (1 to 5), students were timetabled to learn about medicine in the context of WWI. Prior to the discussion task, the teacher introduced the context, which was the Battle of the Somme.</p> <p>Discussion task: <u>discuss</u> and <u>evaluate</u> the usefulness of a source to a historian investigating treatments available in the Western Front during WWI.</p> <p>The source was a diary entry from the Western Front written by nurse Edith Appleton.</p>	<ul style="list-style-type: none"> - Model meaningful discussion enacted by researcher and class teacher - Guiding questions to support conversation - Talk roles (interviewer, interviewee, and moderator) - Ground rules
2	<p>This lesson was a continuation from research lesson 1, focusing on defining/describing a source, evaluating it for strengths and weaknesses, and comparing it with a second source based on the evidence presented by each.</p> <p>The materials students had for this was the diary entry from RL1 (source A) and a photograph of a casualty clearing station (source B).</p> <p>Discussion task: <u>compare</u>, <u>evaluate</u>, and <u>decide</u> what source is more useful to a historian investigating WWI treatments and why.</p>	<ul style="list-style-type: none"> - Model meaningful discussion enacted by researcher and class teacher - Guiding questions to support conversation - Talk roles (interviewer, interviewee, and moderator) - Ground rules
3	<p>At the start of this lesson, students were reminded how to use historical sources in examination and shown examples of primary and secondary sources and the purposes different sources might have (letters, photographs, newspapers, interviews, diaries, artefacts, etc.). They then received an extract from the diary of E.S.B Hamilton 19th August, 1916. He was working at an Advanced Dressing Station on the Somme in August 1916, as part of the field ambulance.</p> <p>Discussion task: How would you <u>follow up a source to find out more</u> about treatments that were available for wounded soldiers on the Western Front?</p>	<ul style="list-style-type: none"> - Model meaningful discussion enacted by researcher and class teacher - Guiding questions to support conversation - Talk roles (interviewer, interviewee, and moderator) - Ground rules
4	<p>This lesson was a continuation of RL3, and it was about the impact of new treatments available on the battlefield. The new stimulus for the discussion was an image of the Thomas Splint used to treat wounded soldiers.</p> <p>Discussion task: <u>compare</u>, <u>evaluate</u>, and <u>decide</u> what source is more useful to a historian studying the treatment of wounds on the Western Front.</p>	<ul style="list-style-type: none"> - Model meaningful discussion enacted by researcher and class teacher - Guiding questions to support conversation - Talk roles (interviewer, interviewee, and moderator) - Ground rules

5	<p>This lesson was about the end of WWI with the victory of the allies and terms given to Germany in the Treaty of Versailles. Students also watched a video that explained the motivations of the leaders of the UK, France, and the US at the time. Students were given a caricature with allies forcing peace terms on Germany.</p> <p>Discussion task: Explain what the picture is showing and what implications it had.</p>	<ul style="list-style-type: none"> - Guiding questions to support conversation - Talk roles (interviewer, interviewee, and moderator) - Ground rules
6	<p>This lesson is about the aftermath of Versailles for Germany and how their soldiers from WWI were unhappy and preparing a rebellion, which will later be known as the Spartacist Uprising. Students were taught about the context, and key concepts such as capitalism, communism, and the meaning of right- and left-wing politics.</p> <p>Students were given one black and white picture of soldiers holding a flag and armed outside a town hall in Berlin.</p> <p>Discussion task: <u>describe</u> what is happening in the picture and <u>why you think</u> it is happening.</p>	<ul style="list-style-type: none"> - Talk roles (interviewer, interviewee, and moderator) - Ground rules
7 & 8	<p>Students learnt about the place and role of women in Germany after WWI. They watched videos, read about German culture and society, and saw images of different dresses that women wore in the beginning, middle and end of the 19th century and compared it to their dress code in the 20th century.</p> <p>Students were given three different sources (magazine, newspaper article and memoirs) in each lesson of the two lessons.</p> <p>Discussion tasks: Read the sources and <u>interpret</u> how German society has changed since 1914.</p>	<ul style="list-style-type: none"> - Ground rules
9	<p>In this lesson students had to discuss why 1923 was such a bad year for Germany. The context was covered in a short text which they read, they watched a video and were introduced to key terminology (The Ruhr, hyperinflation, invasion, reparations, etc.)</p> <p><u>Discussion task</u>: <u>discuss</u> what you can <u>infer</u> from the text you read about the state of the German economy which made 1923 a bad year.</p> <p>They also had four images available to them including one with a man carrying money in a wheelbarrow.</p>	<ul style="list-style-type: none"> - Ground rules
10	<p>This final lesson was about the lean years for the Nazi Party from 1924 to 1929.</p> <p>Students were given a list of reasons for the loss of influence of the Nazi party in German politics</p> <p>Discussion task: <u>Rank order</u> the reasons for the loss of power of the Nazi party and <u>justify</u> your choice.</p>	<ul style="list-style-type: none"> - Model meaningful discussion enacted by researcher and class teacher

APPENDIX G Interrater coding

Dear Colleague,

Thank you for agreeing to help me test the reliability of my coding scheme for my MEd dissertation project. As part of my research, I recorded students during class discussions to find out whether my intervention, which aimed at creating the conditions for students to think and reason together through language, had an impact. I transcribed all recordings and conducted interaction-level discourse analysis. Based on what I heard in the recorded conversations and what the literature says about classroom interaction I devised the following codes for each type of talk:

Talk type	Code	Definition	Example
Exploratory talk / reasoning	EXP	Participants engage in constructive discussion, and everyone shares relevant information. Partners ask each other questions and answer them, ask for reasons and give them and group members try to reach agreement before progressing. Reasoning is 'visible' to observers of the group. <i>*Adapted from Mercer & Littleton 2012</i>	<p>Student A So, what type of source is B? Who was it produced by?</p> <p>Student B Source B is a photograph produced by a war photographer.</p> <p>Student A Why would anyone produce this source?</p> <p>The purpose was to show medical students and people back home.</p> <p>Student A What does it tell us about the injuries?</p> <p>Student B This is useful because it shows us the soldiers with bags on their feet, which we can infer was to treat trench foot.</p> <p>Student A What does it not tell us about the injuries suffered by soldiers?</p> <p>Student B The source is also limited because it doesn't show in detail what treatments the nurses used.</p> <p>Student A What does this link to from your previous knowledge?</p> <p>Student B From my own knowledge, I know that the Battle of the Somme was the bloodiest battle with lots of casualties as shown in the picture, so it is not a typical or representative picture of WWI.</p>
Talk management exchange	TME	Participants talking about the task at hand.	<p>Student A What do we have to do?</p> <p>Student B We need to ask these questions, and, in your answer, you need to make sure you include these three elements from the text.</p> <p>Student A OK, I'll start asking...</p>

Cumulative Talk	C	Participants simply accept and agree with what others say without evaluation, qualifying or adding own ideas	Student A The state of the economy and the difficulties people faced in Germany made them vote for Hitler. Student B Yeah, they voted for Hitler because of the economy and the difficulties.
Social Talk	ST	Off-task chatter in lesson	Student A What time is break? Student B In 10 minutes. Student A Oh, my days! I'm so hungry... can't wait!
Other	O	Any type of talk that does not align with the categories above	This is at the discretion of the coder as to whether an interaction is deemed not to fit in any of the types of talk defined above.

What does it look like in practice?

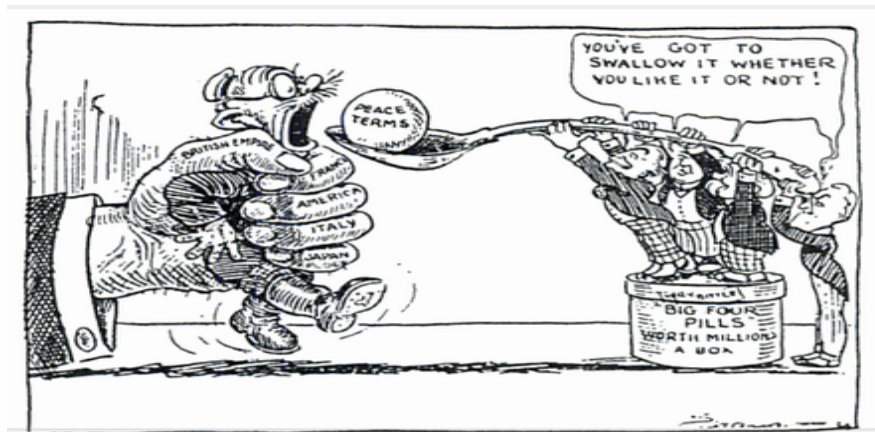
Speaker	Turn	Code 1	Code 2
Joe	What do we have to do?	TME	
Bloggs	We need to ask these questions, and, in your answer, you need to make sure you include these three elements from the text.	TME	
Joe	OK, I'll start asking.	TME	
Bloggs	OK, let me get ready.	TME	
Joe	So, what type of source is B? Who was it produced by?	EXP	
Bloggs	Source B is a photograph produced by a war photographer.	EXP	
Joe	Why would anyone produce this source?	EXP	
Bloggs	The purpose was to show medical students and people back home.	EXP	
Joe	What time is break?	ST	
Bloggs	In 10 minutes.	ST	
Joe	Oh, my days! I'm so hungry... can't wait!	ST	

Instructions to volunteer coders (stage 1)

1. Please read each of the four extracts below and use the column headed code 1 to give each interaction the code you think is most suitable to what is being said as in the example above (EXP, TME, C, ST or O).
2. You may wish to read the context provided for each extract, so you know what students are talking about in their conversations.
3. Leave the column headed code 2 as we will return to it for stage 2.

Interrater coding extract 1

Context This was a conversation held by a group of students in a Y10 GCSE history lesson. The task was to discuss the practical implications of the Treaty of Versailles after WWI where the allies (Britain, France, America, Italy and Japan) imposed peace terms on Germany.



Speaker	Turn	Code 1	Code 2
Student A	What do you think led to this situation?		
Student B	Well, because Germany lost the war, other countries were demanding reparations? Yeah.		
Student A	What are the likely outcomes in this scenario from your own knowledge?		
Student B	The likely outcome? They could agree, they could agree to the peace terms. You know, what, was being forced.		
Student A	Why do you think? Why do these other countries feel they have the right to force Germany to accept this?		
Student B	Because of the loss of land and loss of soldiers they want, you know, they want reparations.		
Student A	How, how could this be? How could have this been done differently?		
Student B	They could have been nicer, you know, they didn't have to force them.		
Student A	Yeah, I know! Why do you think the same thing was avoided at the end of World War II?		
Student B	They probably tried to avoid it because they wouldn't want more problems or Germany to retaliate. Period.		
Student B	What do you think led to this situation?		
Student A	I think is because Germany lost the war and demands for preparation.		
Student B	Okay, what are the likely outcomes of this scenario? from your own knowledge?		

Student A	They agreed to the peace terms. And it was forced.		
Student B	Why do these other countries feel they have the right to force Germany to accept this?		
Student A	Because Germany lost the war and demand for reparation....		
Student B	How could this have been done differently?		
Student A	And they didn't have to be they could have not forced it. And it could have been said in a better manner done in a better manner		
Student B	They could be nicer. Okay. Why do you think the same thing was avoided at the end of World War II?		
Student A	They avoided it so Germany wouldn't retaliate, and they didn't want any more problems.		


Interrater coding extract 2.1

Context The extract below is from a different day and a different group of students in the same history class. The task was to discuss and evaluate the usefulness of a source to a historian investigating treatments available in the Western Front during WWI.

"The dugout of the ADS is awfully overcrowded both night and day and it is impossible to get it cleaned or aired. There were something like 800 people through here in about thirty hours the day before yesterday. This is far too much work for the personnel of three officers and about 115 men. The result is a lot of the men are done up and the officers seedy and depressed."

From the diary of E.S.B Hamilton 19th August, 1916. He was working at an Advanced Dressing Station on the Somme in August 1916, as part of the field ambulance.

1. What information in the source will help us to find out more about treatments that were available on the Western front?
2. Why did you chose that information?
3. What question could you ask about that information to find out more about it?
4. What type of sources could you use to help you to answer the question?
5. How will those sources help us to find out more about treatments that were available on the Western Front?



How did medicine develop during World War 1?

Speaker	Turn	Code	Code
		1	2
Teacher	Okay? So, off we go now.		
Student C	Uh, we're doing this question		
Student D	It's Source A, it's Source A.		
Student L	Are we doing Source A or Source B?		
Student D	This is Source A anyways. It tells you. Look. This is Source A.		
Student L	Okay, we're doing it about this.		
Student C	Yes.		

Student D	So, what information in the source will help us to find out more about treatments that were available in the Western front?		
Student C	Uh, I'd say that the-- it was-- there was-- I-I'd say a bit, the part where it says about how many people worked through there in 30 hours is quite helpful because it gives you, like, a sort of rough statistic of how many people were there. So it will help you.		
Student L	That's question one and two. Then, uh, what question could you ask about that information to find out more about it?		
Student C	Uh, you could ask about like-- 'cause it's a rough estimate, so you could ask more, like, deep, for more detailed results than this.		
Student L	What type of sources could you use to find-- Uh, what type of sources could you use to help you to get answer-- to answer the question?		
Student C	Uh, you could use biographers, autobiographers, newspapers, m-more detailed there are of these sources.		
Student L	How will the- how will those sources help us to find out more about treatment that are available in the Western Front?		
Student C	Uh, they-they-they would have information from those times. So you would have more detailed information than just a rough estimate, which is what the- what the source is.		

Interrater coding extract 2.2

Speaker	Turn	Code 1	Code 2
Student C	You take the white circle and then, like, look for the dot.		
Student D	Yeah.		
Student L	Oh yeah, yeah, let's scroll then.		
Student C	Yeah. Let's see, I'm not--		
Student D	You are my flower, the one desire. You are--		
Student C	I think it just- I think it just restarted.		
Student L	Restarted?		
Student D	Yeah, it probably restarts every five minutes. I say I want it that way.		
Student L	Are you sure the source-- What's this about? Amputees--		
Student D	I want it that way. Tell me why. Hey, yo. I love these songs.		
Student D	Sheesh, are you simping already?		
Student L	Me?		

Student D	Yeah, you.		
Student L	Are you dumb?		
Student D	Why does she only give you the paper? I want the paper, give me the paper.		
Student D	I-I could- I could take your man if I wanted you, but lucky for you, I don't want to.		
Student L	Okay. Do we have to do this one?		
Student L	Okay.		
Student D	Amputees, pictures at Royal Victoria Metro Hospital-- and Me-Metro Hospital during World War I.		
Student L	Hold on. Time, World War I or since.		

Interrater coding extract 3

Context This final extract is from a lesson where students had to discuss why 1923 was such a bad year for Germany. The context was covered in a short text which they read, they watched a video and were introduced to key terminology (The Ruhr, hyperinflation, invasion, reparations, etc.). At that point, students were asked to discuss what they could infer from the text they read about the state of the German economy which made 1923 a bad year. They also had four images available to them including the one below with a man carrying money in a wheelbarrow.



Student L	Okay Source E , I can infer, Germany were struggling to pay their reparations and their only source of money was from the factories in Ruhr. But the French and Belgium decided to invade them because they weren't paying their reparations on time, so in retaliation, Germany decides to shut down their factories and make all the workers go on strike. But in order for the workers to go on strike, they need to go-- They need to get paid but they're not generating any money how are they going to get paid. So the go-government decides to print more money but because no one was working they can't- they can't get their resources. No resource means no more money and money starts to drop. And then that's how hyperinflation comes in. A price of a loaf of bread in 1919 was one mark in 1922 it was 100, in 1923 it was 200 bil-- what the f-- 200,000 billion marks! That's a lot- that's a lot.		
Student L	Um, so Germany basically couldn't do anything so-so that's when a new government came. A new government came in and struggled-- and [unintelligible]. What did they do again?		
Student D	They did something with the currency. I just don't know what, though. Uh, this is my next page you know, uh, no.		
Student L	Oh life became-- oh, it's because they had an agreement- they had an agreement to make Germany better again and back to how it was.		
Student D	Yeah.		
Student L	About 1926-- I think it was like 1925 to 1926 that's when Germany became normal again.		
Student L	Yeah, so I think that was a good response.		
Student L	Yeah, your turn.		
Student D	It's basically--		
Student L	Basically, I said the whole thing, to be honest.		
Student D	Basically the guy on my left said everything I wanted to say. He literally copied me. I was-- It wasn't like-- It's not like this whole thing been written in my book and he's been looking at it.		
Student D	Oh, it's freestyle		
Student D	All right, basically I-I wanna add some points, right?		

Student L	Okay.		
Student D	So after their hyperinflation, right, a new chancellor names Gustav Stresemann,-		
Student L	Dude, I know about him.		
Student D	he's very stressed 'cause the second name means it should be stressed.		
Student L	Stress.		
Student D	Right, he found solutions to some problems what-- of what happened in 1933. And by this point-		
Student D	the eco-- The-the political and economical damage was already done. It was already damaged, um-um, everyone in Germany suffered most of them blamed the Weimar Republic and the--		
Student L	All-all of their investments that they had-		
Student D	Excuse me, it's my turn now.		

As a project aimed at developing student thinking and reasoning through language, I was interested in the different functions of exploratory talk / reasoning employed by students. Based on what I heard from the recordings and literature on classroom interactions I devised the following codes for functions of exploratory talk /reasoning.

Function of exploratory talk/reasoning exchange	Code	Definition	Example
Justifying	J	Students give a reason in support of their choice or stated view.	<p>Student A What were the biggest factors in reducing Nazi popularity in your view?</p> <p>Student B Okay. So, the most significant factor in reducing popularity Nazi popularity was Hitler's ban from public speaking. Um, this was significant, like most significant because, it silenced Hitler and his ideas, uh, limiting his voice, I guess. Uh, and, uh, the second most significant factor in reducing Nazi popularity was political stability,</p>

			because, more Germans were beginning to have more faith in the Weimar Republic.
Elaboration on others' contribution	E	Students build on others' contribution by adding their own or qualifying a previous contribution.	Student A This was the worst day in the war as it was the bloodiest. Student B Yes, you can tell by the number of casualties recorded in one day.
Inviting reasoning/asking questions	I	Students ask a question inviting each other to state a view or justify one.	What do you think caused this? Who benefited the most from this conflict? Why? Why would anyone write this type of letter?
Suggesting/stating	S	Students stating a view independently or as a response to a question.	Student A In principle, I would be in favour of amputation. Student B Not really! You're losing an essential part of your body! I'd only go for it as a last option to stop soldiers from dying. Student C What do you think Hitler wanted to achieve? Student D I think he saw a weaker country and wanted to invade but then the power got to his head and kept going.
Hypothesising	H	Students saying what they think might/could be happening without being too sure but having a degree of certainty based on prior knowledge or sources being used.	Student A The war could have been avoided if they sat round a table and talked about it like adults, but leaders might not want to look weak in front of their people who keep seeing Hitler advancing and conquering while they offer tea and crumpets. Student D Are those soldiers in the picture? They might be officers or generals... look at their uniforms. Maybe it is a riot or just before the riot actually happens. Oh, see that flag! It could be a peaceful protest. What if they found out that their armoury production fiasco and they're angry, maybe.

Instructions to volunteer coders (stage 2)

1. Please re-read your coded extracts and if you labelled any interaction as EXP, fill in the second column headed code 2 with the type of function you think is being fulfilled as in the example below.
2. Only fill in the code 2 column for interactions you deem exploratory/reasoning.

Code 2 in practice

Speaker	Turn	Code 1	Code 2
Joe	What do we have to do?	TME	
Bloggs	We need to ask these questions, and, in your answer, you need to make sure you include these three elements from the text.	TME	
Joe	OK, I'll start asking.	TME	
Bloggs	OK, let me get ready.	TME	
Joe	So, what type of source is B? Who was it produced by?	EXP	I
Bloggs	Source B is a photograph produced by a war photographer.	EXP	S
Joe	Why would anyone produce this source?	EXP	I
Bloggs	The purpose was to show medical students and people back home.	EXP	J
Joe	What time is break?	ST	
Bloggs	In 10 minutes.	ST	
Joe	Oh, my days! I'm so hungry... can't wait!	ST	

Appendix H Challenges encountered during research and solutions

Research stage	Challenge	Solution
Pilot	Problems with parental contact details to inform of pilot: hard to reach by phone and email address bouncing back.	Letters posted home
Pilot	Logistical challenge of setting up recording devices.	Trial and error to find a place that was not unduly intrusive but allowed for data collection
Pilot	Student inhibitions: whispering and not wanting to be audible in recordings.	Explaining to students the importance of the project and how it will be used to improve their learning and that of others
Pilot	Large files from observation recordings difficult to store because they are too heavy and require deleting other important files.	Purchased external hard drive for storage of raw data.
Pilot	Teacher-student talk ratio imbalance. Not hearing much talk from students at all.	Sensitive approach to issue with class teacher and using collaborative planning time to create tasks that promoted student talk.
Pilot	Long sections of audio without any real talk but require listening to.	Triple speed playback until students begin to talk.
Intervention	Covid-19 January to March 2021 lockdown	Postponing intervention to April 2021.
Intervention	Post-lockdown mock exams cancel initial plans to begin intervention as soon as we returned to school in April 2021.	Postponing intervention until mid-April 2021.
Intervention	Collaborative planning and joint analysis sessions prove difficult to schedule because of work and childcare commitments of class teacher.	To make it as easy as possible for class teacher, I attend collaborative planning and joint analysis sessions at class teacher's house from 21.00 onwards the night before each of the 10 research lessons when her children were in bed.
Intervention	Class teacher self-isolating because of Covid-19.	Postponing intervention sessions for a week.
Intervention	Class teacher absent because of partial lockdown in her son's school.	Postponing intervention sessions for a week
Intervention	Partial lockdown of year group being researched.	Postponing intervention sessions.

Intervention	Students absent on either pre or post intervention survey day.	Exclusion from data analysis to allow like for like comparison of survey responses.
Intervention	Students absent on follow up interviews after survey results analysed.	Re-scheduling of interviews to later date.
Write up stage	Entire department of the researcher self-isolating because of Covid-19	Prioritisation of own lessons and running my subject as opposed to writing and application for extension to August 31 st 2022