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Using linguistic ethnography as a tool to analyse dialogic teaching in upper primary classrooms

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ABSTRACT

The features of dialogic classrooms are well researched and theorised, yet the nuanced actions of dialogic teachers as they enable such a context are less well defined. This study takes a linguistic ethnographic approach to unpack the subtle differences in approach that three teachers take in their primary classrooms. The study is uniquely positioned in that all teachers were part of a larger project where they engaged in a series of lessons promoting dialogic interactions and discussions that aimed to foster tolerance, empathy and inclusion. As such they followed the same lesson plan – though each took the discussion in a different direction. Results find that analysis at macro and micro level, drawing on linguistic ethnographic methodology, in addition to well-established modes of dialogic analysis, highlighted the importance of seemingly minor discourse features that had significant impact on the resulting responses from children. Additionally, in all classes a common ethos of community and shared commitment to learning goals, norms for classroom discussion, and an affective convergence of social cohesion was apparent.

1. Introduction

Much has been written and researched about the role of dialogue in education, what a dialogic pedagogy might look like, and how it might be beneficial to learners in classroom contexts. A recent handbook (Mercer, Wegerif, & Major, 2020) highlights the breadth of this field as 47 chapters and over 100 authors are devoted to the exploration of dialogue in education through multiple lenses, with regard to literacy, digital technology, professional development, transformation of practice and dialogic classrooms. These studies often share common socio-constructivist concerns placing language at the heart of learning and the more knowledgeable other, teacher or guiding peer, as crucial in the development of learning (Vygotsky, 1978). From examining the ethos of a dialogic classroom and the foundational tone of a context where high order thinking and collaborative co-construction can flourish (Alexander, 2008, 2020; Howe, Hennessy, Mercer, Vrikki, & Wheatley, 2019; Nystrand, Gamoran, Kachur, & Prendergast, 1997) through to the pinpointing of dialogic functions in the talk of students and teachers (Hennessy et al., 2016; Mercer & Littleton, 2007; Soter et al., 2008; Vrikki, Wheatley, Howe, Hennessy, & Mercer, 2018; Wilkinson et al., 2017), the field of educational dialogue is rich with recent and relevant research.

This study draws on the affordances of a linguistic ethnographic approach (Copland & Creese, 2015; Lefstein & Snell, 2020; Rampton, 2007) to examine the context of classroom discussions enabled by highly skilled, dialogic teachers. A unique and innovative opportunity arose to examine classes where three different teachers taught the same lesson to their Y5 (ten-year old) children in

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England. The teachers were all part of a wider Horizon 2020 project, DIALLS (Dialogue and Argumentation for Cultural Literacy Learning, www.dialls2020.eu) aiming to support the development of children's cultural literacy which has been defined as dialogic social practice underpinned by tolerance, empathy and inclusion (Maine, Cook, & Lähdesmäki, 2019). The project involved the explicit teaching of dialogue skills whereby children could learn to engage critically and inclusively with each other's ideas about a series of themes around social responsibility, living together and 'being European' in the 21st century.

This article is an exploration of the different styles of dialogic teaching (Alexander, 2008, 2020) three skilled teachers engage as part of their repertoire. Rather than starting with a goal to identify how dialogic the teaching observed was, as has been the focus of many other studies (see Howe et al., 2019 for example), we identified classes which seemed to adhere to dialogic principles and then set about deconstructing this practice in detail. The innovative linguistic-ethnographic approach allows a deepened, multi-layer exploration into their craft, moving beyond examination of the technical engagement of their dialogic teaching skills (Alexander, 2008; Howe et al., 2019; Nystrand et al., 1997) into an ethnographic consideration of how their talk engagement signalled their "dialogic pedagogical values" (Aukerman & Boyd, 2020, p. 373). Whilst initial classroom observations showed the teachers to engage in generic dialogic practices it was noted that they were very different in the approaches they took to engaging their classes. We explore how this affected the participation of students and how this was manifested linguistically in order to illuminate the nuanced interactions that contribute to a dialogic practice.

Classrooms are complex and the multiple choices about how to engage with students that teachers make at every turn have far reaching implications for the outcomes and attitudes towards learning of their students (Howe et al., 2019); our investigation aimed to unpack these differences and celebrate their diversity. We present this as a valuable addition to the field which has focused either on the impact of dialogic teaching (Howe et al., 2019) or identifying features of dialogic classrooms (Alexander, 2008, 2020; Nystrand et al., 1997; Soter et al., 2008; Wilkinson et al., 2017). By taking three apparently similar classes and deconstructing their differences, the nuanced complexity of dialogic teaching is foregrounded, rather than a normative driven, procedural conceptualisation of the approach.

2. Dialogic pedagogy

The situational context of learning in dialogic classrooms is of key importance from a socio-cultural perspective and authors (Bloome, Carter, Christian, Otto, & Shuart-Faris, 2005; Gee, 2014; Lefstein & Snell, 2020) have all acknowledged that as learning does not take place in a vacuum, consideration of the situational classroom context at a macro level is key to understanding the dialogic processes that exist within it (Hennessy et al., 2016; Hymes, 1972). The most cited author who relays an explicit set of principles for a dialogic classroom is of course Alexander (2008, 2020). Focusing on classes that did not merely replicate Initiation-Response-Follow-up (IRF) patterns of questioning and response (Sinclair & Coulthard, 1975), he set out a list of principles for a context where language and idea-rich learning could happen. Other researchers have produced similar lists (Howe et al., 2019; Nystrand et al., 1997; Wilkinson et al., 2017) all focusing on the importance of students being able to explore their ideas fully, reflect on their talk processes and be encouraged not only to build and agree, but to challenge and critique other viewpoints. Of course, these studies assume that such a pedagogy is a positive approach. Important recent research has set out to examine the impact of dialogic teaching and whether in fact it does lead to an impact on student outcomes. Whilst cautious in their findings, Howe et al. (2019) concluded that in elaborated responses, querying and student participation were all impactful as strategies for teaching that would impact on student outcomes. Further, a study undertaken for the Education Endowment Foundation (EEF, 2017) found that schools that had received professional development support to develop their dialogic teaching practices showed gains in pupil progress (the reliability of this randomised control trial was deemed to moderately confident).

The complexity of the teacher's role in enabling dialogic learning is subtle and nuanced. It includes the teacher's management of the atmosphere and context of the classroom both at micro and macro levels and their awareness of the children's individual learning needs with much of this role managed through language. Classroom talk is a specific type of spoken language discourse in several respects – not least because there is an asymmetrical age and power relation between the dominant speaker, the teacher, and children in the class. In a dialogic classroom the teacher positions themselves as co-learner (Alexander, 2008, 2020) with a move towards more intimate and collaborative conversation (Carter & McCarthy, 2004), subsequently allowing for the creation of a dialogic space (Wegerif, 2010), where meaning can be explored together.

Aukerman and Boyd (2020) rightly warn against the reduction of dialogic analysis, or what Howe et al. (2019, p. 465) tightly define as "theoretically productive (classroom) dialogue", where "productive" means "conducive to positive student outcomes", to a list of features and functions. However, several authors over the last 20 years have attempted to quantify the qualities of the talk that is enabled by such an environment, not aiming to reduce the qualities of dialogic pedagogy to a check list of features, but as "frameworks for systematically analysing classroom dialogue" (Hennessy et al., 2016, p. 16) recognising that "participants in dialogic interactions construct meaning through chained sequences of utterances" (2016, p. 17). Some of these studies have been context specific, looking at small group interactions and how teachers might support learning in such contexts (Maine & Hofmann, 2016; Soter et al., 2008; Wilkinson et al., 2017). With a grander vision, The Scheme for Educational Dialogue Analysis (SEDA) explored classroom interactions with an aim to create, "an analytic framework for making sense of their form and function that is widely applicable to diverse educational contexts and to both teachers and students, consistent with the main theoretical perspectives and employing a single set of descriptors that capture their shared functions in dialogue" (Hennessy et al., 2016, p. 17). The scheme included 33 different codes organised within eight clusters and focusing on the dialogic functions of communicative acts (Hymes, 1972). Central to this scheme were the role of reasoning, positioning, building, inviting and reflecting; importantly, the codes could be attributed to either teacher or student talk, thus highlighting high levels of dialogicality, where students invited each other to extend ideas or offer alternatives.

However, it is not just the micro-level analysis of turn-taking functions that is important in the classroom but consideration of who speaks and when, in addition to the dialogic functions of the turns that they take. Thus, coding is just the start of the analysis, allowing a deeper dive into the complexities of classroom interactions. In this paper, we aim to explore how, by taking a close systematic linguistic analysis of teachers' language, considered in the ethnographic context of whole class teaching, we can give further insight into the complex repertoire of what dialogic teachers do and say. Thus we ask:

How can a linguistic ethnographic methodology support the deconstruction of the nuanced practice of dialogic teaching?

a. How do the participation structures of dialogic classrooms illuminate this practice at a macro level?
b. What linguistic features position teachers as supportive co-constructors of knowledge at a micro level?

3. Methodological framing – the affordance of linguistic ethnography

Linguistic Ethnography (LE) can be seen as broadly fitting under the umbrella of 'ethnography of communication' (Hymes, 1972; Saville-Troike, 2003), as an example of a micro ethnography (Bloome et al., 2005) and indeed a social semiotic perspective (Halliday, 1975). Communicative events sit within a nested hierarchy (Hymes, 1972; Rojas-Drummond, Mazón, Fernández, & Wegerif, 2006; Saville-Troike, 2003) of situational contexts, with the communicative act as the smallest unit of analysis. However, attention can also be paid to participation structures (Bloome et al., 2005) and the relationship between turns of speech. Lefstein, Snell, and Israeli (2015) argue that the very co-constructive nature of discourse means that a single utterance cannot serve as a meaningful unit of analysis as it is embedded within a larger unit of meaning; it is the paradigmatic chaining of utterances that leads to co-construction (Wells, 1981). Further, the LE approach enables a close consideration of the linguistic make-up of these turns, not just the dialogic functions that they serve.

LE offers the opportunity to study communicative acts, their linguistic make-up, turns and the sequencing of these within their situational contexts. Copland and Creese (2015) suggest that Linguistic Ethnographers, "attempt to describe and understand the relevance of signs in ongoing communicative activity and situated social action" (2015, p.16). Rampton (2007) argues that LE draws on a complement of the holistic nature of ethnography with the systematic rigour of linguistics. In the same volume, Hammersley challenges this to a degree, wondering if in fact LE falls between too stalls, lacking the rigour of Conversation Analysis, yet undermining the thick and rich nature of ethnographic data by needing to quantify it (Hammersley, 2007). However, Lefstein and Snell (2020) argue that drawing on the established criteria for dialogic pedagogy (Alexander, 2008; Howe et al., 2019; Nystrand et al., 1997) an LE approach can use quantitative analysis to unpack the complexities of classroom talk, "linking the micro to the macro" (Copland & Creese, 2015, p. 26). In their research, they use the approach to take what intuitively they sensed as dialogic spells (cf. Nystrand et al., 1997) and confirm it through coding to unpack the dialogicality of pedagogy in real contexts. Starting from the same intuitive stance and the dialogic practice of a set of three primary teachers, in our study we go further, drawing more specifically on linguistic approaches to examine patterns and participation structures, to capture the nuanced interactions of skilled dialogic teachers in primary classrooms. In our research, the linguistic ethnographic approach is further enriched by the interdisciplinarity of the two researchers involved in coding and analysis of data. One was an educational researcher with expertise in literacy and language engagement and qualitative analysis of children's talk; the second an experienced corpus linguist with expertise in handling large data sets.

4. Method

The focus of the study is the teacher as a central agent in the establishment of a dialogic spell (Nystrand et al., 1997). Therefore, although in all cases the teachers moved in and out of whole class (WC) teaching, using small group (SM) talk between peers to develop ideas, it is the WC talk that we analyse here as a bounded literacy event (Bloome et al., 2005). The dataset used for the study consist of the three lessons that were observed, recorded and transcribed. The classes were all upper primary level in England, similar in size (approximately 24–30 children). The lesson was only the third in a programme promoting dialogic talk, but initial lesson observations as part of the wider project showed dialogic practices were already embedded within these classes. There were clearly established structures for classroom talk, children were confident to share ideas, teachers used open, authentic questions and follow up (Nystrand et al., 1997) and meaning-making appeared to be a shared endeavour. The ease with which children moved in and out of WC and SM activities indicated that classroom discussions of this sort were a common occurrence. To answer our research questions, our ethnographic and linguistic analysis was conducted at two inter-related levels: i) the macro-level of the ethos of the dialogic classroom, and ii) the micro level of the dialogic interactions.

The macro-level included the broader situational context of the three lessons focusing on the ethos of these classes and differences and similarities in dialogic teaching styles of the three teachers. To capture this macro-level, we used in addition to our ethnographic field notes, quantitative analysis of the classroom events, i.e. the classroom participation structure and patterns of involvement. These are captured in two different ways: firstly, in terms of lesson segmentation into WC and SM discussions, which seemed at one level, based on our initial observation, to reflect some of the differences in the classroom ethos between the three classes. Secondly, to support the overall quantitative picture, we also calculated the number of words uttered by the teacher and the children during the WC discussions.

The patterns of involvement are further captured through visualisations of the classroom interaction between the teacher and the children and among the children themselves. The visualisations are based on explicit first name mentions. Naming is not only a powerful linguistic and rhetoric tool but also captures two essential features of a dialogic talk: an invitation for someone to talk and thus initiate a topic or extend and move the dialogue forward, and crucially the potential to follow up and build on someone else's

ideas and opinions. Analytically, using name mentions presents a more objective way of capturing patterns of involvement. Unlike other types of mentions (e.g. pronouns) proper names are straightforward to identify in the data without a need for further researcher interpretation, such as distinguishing whether *you* is addressed to one person or a group of people. These mentions were then quantified, e.g. how many times the teacher invites a named child to speak and coded to establish directionality, i.e. who invites/refers to and who is invited/referred to. The visualisations were processed in the Gephi 0.9.2 tool (Bastian, Heymann, & Jacomy, 2009). As an ethical note, all names have been pseudonymised.

For the micro level, which aims to examine how the dialogic functions of talk move the whole class discussion forward within the literacy event, we applied a scheme used in previous work (Maine, Rojas-Drummond, Hofmann, & Barrera, 2020) which aimed to focus on the initiations and extensions of ideas. This scheme had in turn been developed from an earlier iteration, the Scheme for Educational Dialogue Analysis (Hennessy et al., 2016). Turns were coded with all the functions that they included to recognise expanded responses (Rajala, Hilppö, & Lipponen, 2012) whereby an initial response might lead to a further dialogic move. The coding scheme identified functions of: invitation (INV), reasoning (RS), elaborations/clarifications (EC), stating an idea or opinion (O), positioning (P), linking to earlier ideas in or beyond the lesson (L), reflecting on the talk or other metalevel comments (RF), guiding the direction of the activity (G) (Maine et al., 2020). The coding was undertaken separately by both researchers then compared and differences discussed until a consensual coding was agreed.

5. Findings

5.1. The macro-level analysis of the dialogic classroom

In the Cultural Literacy Learning Programme (CLLP) that the DIALLS teachers were following, a series of wordless short films and picture books were used as stimuli for discussions around social themes with the aim of building understandings of tolerance, empathy and inclusion, both as topics for discussion, and also as dispositions enabled by the adoption of inclusive dialogue (Buber, 1947). The lessons in the programme all included split screen objectives (Claxton, 2007) so that they explicitly focused on particular dialogue skills, such as building on ideas, agreeing and disagreeing constructively, inviting each other to contribute, in addition to discussion of themes around social responsibility, living together and sharing values.

The textual stimulus for the lessons was a short film *Papa's Boy* (Lemmetty, 2010), a story depicting a 'boy' mouse striving to follow his dream to be a ballet dancer whilst his ex-boxing champion father looks sadly on. When the father's safety is threatened by a cat, the boy saves the day by distracting the cat with his ballet skills. The father is safe and proud of his son. The lesson plan indicated that the class should be prompted to discuss themes of tolerance, charting the changing emotions of the characters throughout the film. As the children in each class were quick to decide that tolerance was called for, they also explored ideas about why the mouse was only accepted once he had proven his worth by being a hero. In each of the classes the discussions were somewhat circular, with the children referring to their own experiences, and offering quite forthright views. In all classes the children worked in small groups with little disruption, sharing ideas together and feeding back to the whole class confidently. The norms for the discussion management in each class (Hofmann & Ruthven, 2018) prioritised listening carefully to each other, and there was a particular focus on the building of ideas. These were explicitly presented in the form of an agreed list of rules for talk/ground rules/discussion focuses in each class. The specific lesson focus of tolerance for each other's ideas fitted neatly into the existing class frameworks for talk.

5.1.1. Discussion management norms

Class A had clear rules on how discussions were to be conducted and these seemed to be well internalised by the children with an occasional reminder from the teacher, see example (1).

(1) So, we need to make sure we are listening to each other, 'cos I think that's what we struggle with sometimes, isn't it, is thinking about what we want to say. Actually, someone else is saying some fabulous things.

The class used a specific vocabulary and hand gestures for the discussion management, such as a hand gesture showing fists building on each other and the word *build* in example (2) and (3). In example (2) the teacher reacts to the gesture, where example (3) is an interjection by the teacher when there are several children talking over each other.

(2) I saw you **building**. Do you want to – is there something you wanted to know?
(3) Hang on. How are we going to manage this? That or **build**?

Also in Class A, the teacher used a particular style in managing the structure of the discussion shown in examples (4) and (5) positioning herself as a peer within the discussion, with a notable use of second voice to reinforce collusion:

(4) Can I pause us?
(5) [Can I], sorry, can I… Harry has been going like this (gestures building with fists) really patiently for ages. What did you want to say?

In Class B, a system of rules had also previously been established, where children knew that their comment should not be insolation, but in response to something previously said. The following extract demonstrates how the teacher directed the children to ensure this

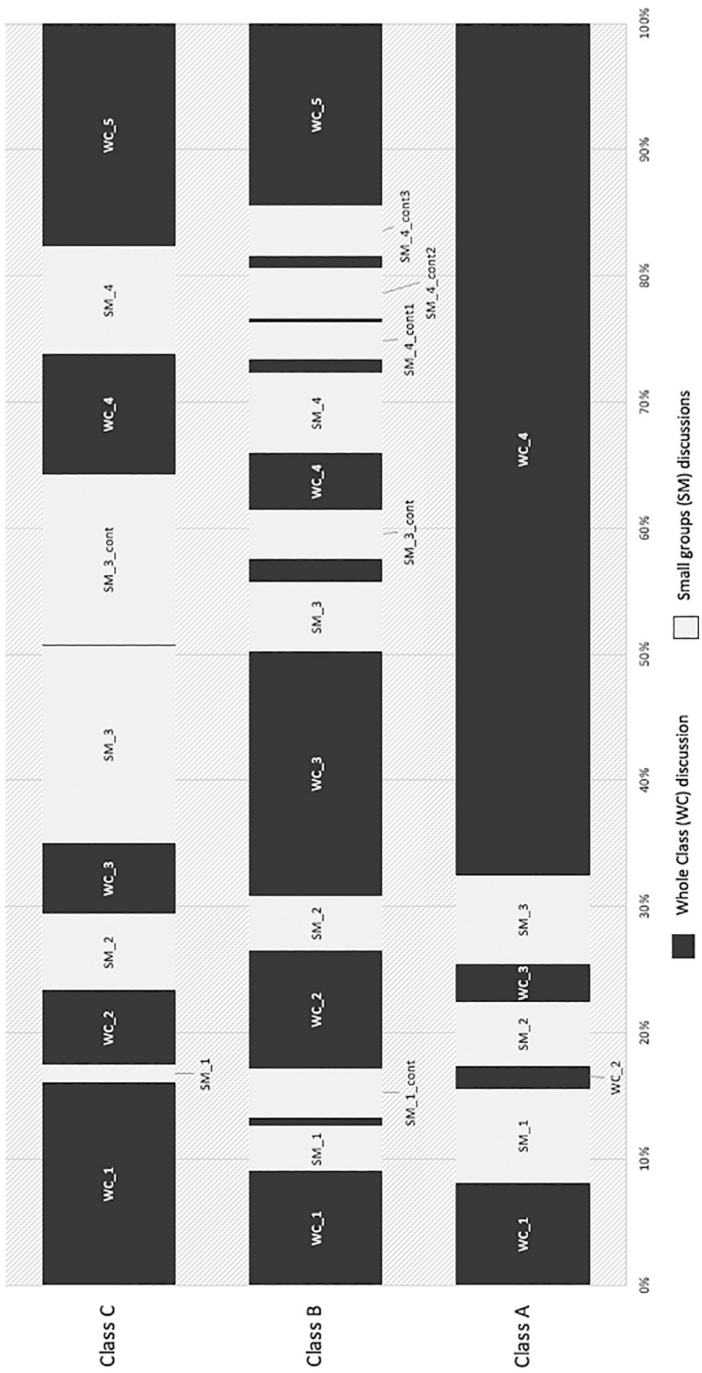

Fig. 1. Lesson structure.

was the case with the use of *build* and *challenge* in line 101 in the following extract.

97	T	So, you're suggesting that, because his son saved his life
98	Nicky	Yeah.
99	T	by that dream, that's why his perception's changed.
100	Nicky	And he might've thought like that boxing could've saved his life by boxing, but then dancing actually has saved his life.
101	T	OK. One more point to follow on from Nicky, whether that's a **build on or a challenge**, and then I've got something else to just throw about. Let's come to Phoebe.

By comparison, Class C seemed more traditional with hand raising as a sign of wishing to speak. However, hand raising was also invited by the teacher as a way of involving the whole class in an ongoing discussion. This 'order' enabled the teacher to engage with several children and ensure the inclusion of less dominant voices. Rather than targeting specific children, the teacher invited all children to build on previously developed ideas, as shown in example (6):

(6) OK. Does anyone want to expand on what Elliot's just said, because he thinks it's a boy and he's got a reason as to why, but would anyone like to add to it? (Frankie raises hand). Frankie, do you want to add to it?

Whilst this structure might have appeared to be following a simple IRF pattern, the teacher centralised the importance of an idea that was being co-constructed by the whole class, using herself as the conduit for building on each child's contribution and linking them together. In this way she promoted the juxtaposition of the ideas, enabling them to be compared and contrasted. This was further emphasised by her use of a collusional 'we' when she summarised the contributions.

Whilst the teachers took different approaches in how they positioned themselves, modelled engagement with ideas and managed the discussion, each enabled the pursuit of the co-construction of knowledge through the sharing of multiple viewpoints.

5.1.2. Participation structures

The length of each lesson differed only slightly from 51 min in Class A, 62 min in Class B and 53 min in Class C. However, the structure of WC and SM discussions differed more widely (see Fig. 1).

Fig. 1 clearly shows three differently organised lessons. All three lessons start and end with WC discussion, though they differ in their use of SM. Class A is focused on one long distinctive WC discussion at the end of the lesson (68% of the whole lesson) with SM discussions only happening in the first part, Class B is more evenly divided between WC and SM activity though the SM discussions are subject to short teacher interventions to the whole class. Class C is similarly divided between WC and SM activity but structured differently with longer periods of uninterrupted SM.

At this participation structure level, it appears that the teacher of Class A is not allowing for student talk as regularly as Teachers B and C. However, an analysis of the proportion of speech performed by the teacher in relations to the speech by the children in the three lessons shows a more complex picture: in this class, during the WC discussions the children speak significantly more than their teacher, see Table 1.

The visualisations of the patterns of involvement based on name mentions during WC discussion uncover another layer of differences between the three classes. Class A displays a rich network of involvement with the teacher as the central node but also a number of engagements between the children (Fig. 2) demonstrating the inclusion of different voices in the WC discussions. By comparison, Class B shows the teacher as the central node with some interactions between the children (Fig. 3) and Class C shows the teacher as the central node with very few interactions between the children (Fig. 4).

Though the visualisations show differences between the classes, the data underlying the visualisations require further commentary. The network captures mainly two types of name mentions: mentions functioning as an invitation to speak and mentions as references linking back to what has been said before and who has said it, in essence an idea/speech appropriation (see Table 2 for summary).

The Class A interaction network (Fig. 2) is the richest of the three classes. Its total duration of WC discussions is also the longest (41 min and 81% of the total lesson). There are 70 mention instances of which 59% are teacher initiated, showing that the children also acknowledged each other's contributions to the discussion. There is also a distinctive plenary at the end of the lesson, in which the teacher invites each child to contribute with a final thought. More than a third of name mentions occur during this part of the lesson and naturally they mostly constitute invitations to speak; among these are also three mentions uttered by the children linking back to what another child said earlier during the lesson. Of the remaining mentions, the majority are again invitations to speak (*Go on, Emma*). There are further 13 instances (only two by the teacher) of linking to, building on or agreeing with what other children said, see examples (7) and (8). The total proportion of these linking back references throughout the whole lesson is 21.4%.

Table 1
The proportion of speech by teachers and children in WC discussions. The differences captured in the number of words are all statistically significant (x^2 at $p < .001$).

Class	Proportion of WC in the lesson	Teacher's speech (in words)	Children's speech (in words)
A	81%	2237	3724
B	55%	3512	2409
C	56%	2647	1475

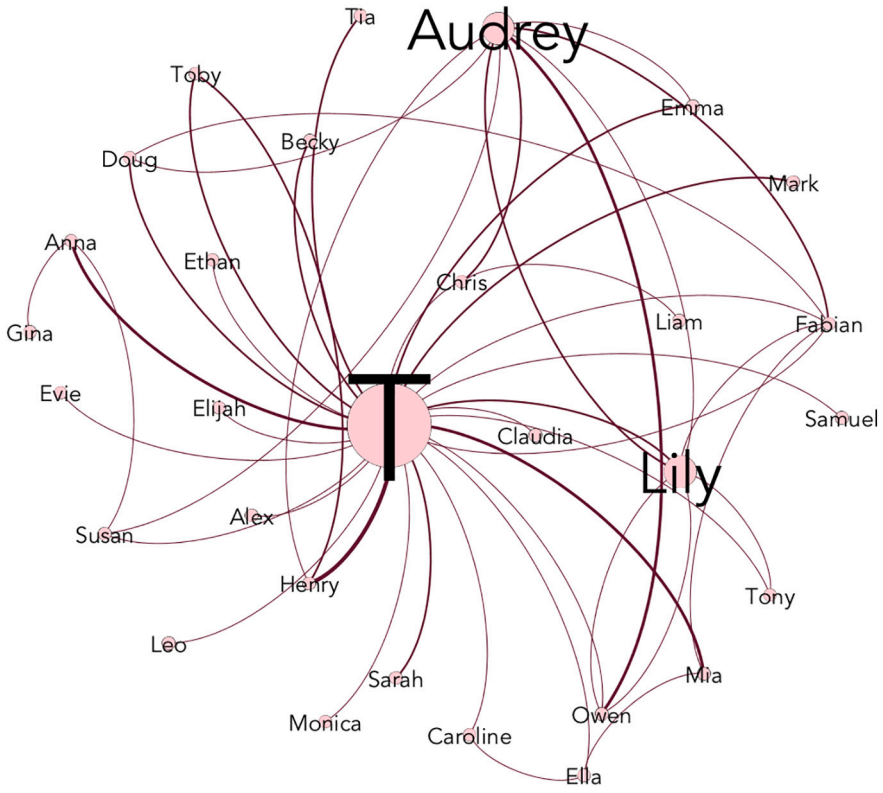

Fig. 2. Engagement network in Class A based on explicit name mentions.

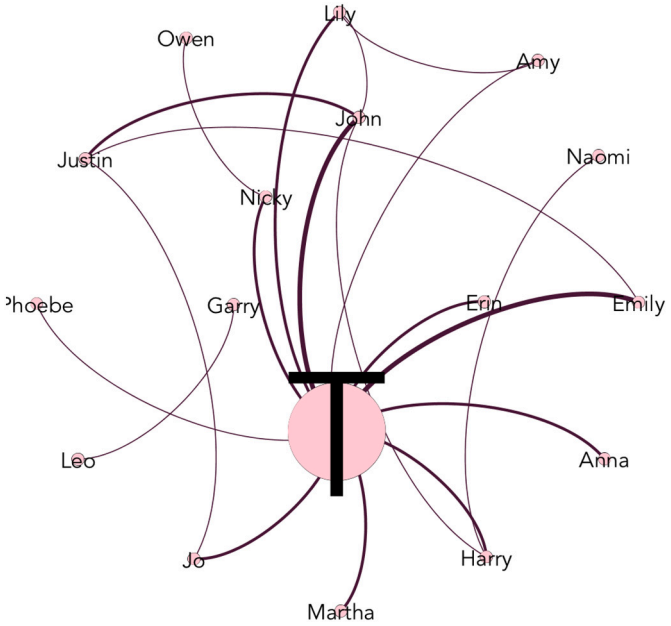

Fig. 3. Engagement network in Class B based on explicit name mentions.

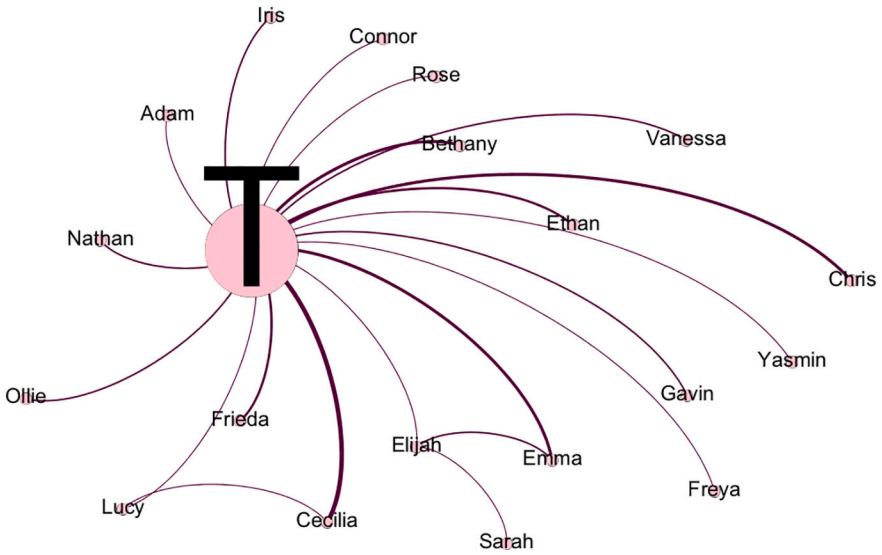

Fig. 4. Engagement network in Class C based on explicit name mentions.

Table 2
Name mentions during WC discussions.

Class	WC duration	All mentions	Invitations (teacher)	Invitations (children)	Linking back (teacher)	Linking back (children)	Other mentions
A	41 min	70	35	11	2	14	8
B	38.5 min	36	20	1	4	3	8
C	29 min	44	30	0	5	1	8

(7) I think, hmm, I think in the film with the mouse, everyone can change your ideas, because some people are different and they have different personalities. But, **like Fabian said**, everyone's not perfect
(8) But **I kind of agree with Emma**, because, at the end, he does agree. He's he says, he kind of is happy that his son wants to be a ballerina, but, at the start, he's like 'No, I don't.'

WC discussions in Class B took 38.5 min (55% of the lesson) during which 36 name mentions were made. This class, similar to Class A, also had a plenary section at the end of the last WC; however, in this case, the teacher chose one child as a representative of their small group discussions to present their group's view. This constituted five invitations by the teacher. Out of the remaining 29 name mentions, seven constituted building upon or referring back to what someone else said – three by the children and four by the teacher. Thus again, most of the mentions were invitations to speak (21 altogether) and all, except one, were from the teacher. The one invitation from a child was actually preceded by the teacher's suggestion to invite someone to speak (*If you're not sure, choose someone to help you out. That's fine.*) So, whilst Fig. 3 shows many links between the children, in terms of genuine reference back to what another child said there are only three, see nodes Nicky – Owen, Harry – John, Harry – Naomi.

In Class C, the network runs through the teacher as a more central focal point. The total duration of WC discussions in Class C was also somewhat shorter (29 min or 56% of the total lesson) with 44 instances of name mentions. The majority were initiated by the teacher and most of these (30) were invitations to speak. Only six of these mentions constituted instances of linking to what someone else said, which amounts to 13.6% of the total. Five times these were teacher initiated, see example (9).

(9) Does anyone want to **expand on what Ethan's just said**, because he thinks it's a boy and he's got a reason as to why, but would anyone like to add to it?

The mini-network between the students (in Fig. 4 see the nodes Elijah, Emma and Sarah) shows a case of a student reflection on their small group work (see example 10). Only the emboldened mentions are classified as a reference back to what has been said, the latter two (underlined) are classified as 'other' types of mention.

(10) Well, we did decide this we did decide this **between me and Emma** as well. Well, to be honest, everybody has something that they like to do, and they can make their own decisions in life, but parents' choices are good as well, but they do have to pick their own decisions. And everybody likes different things, like we were saying that Emma and Sarah, sometimes they watch the same YouTube videos or something, but that means that they're still not the same person, and they all like different things.

When the different types of participation structure analysis (percentage of WC and SM in each class, proportion of teacher talk in the WC sections, the network of interactions) are considered together, the data show complex differences between the teachers. Whilst Teacher A includes significantly more WC time, the voices of her children are heard more than hers in this time, and the network of interactions shows children inviting each other to participate and referencing each other by name (much as would be expected in a small group context). In Class B, the teacher talks more when in WC mode, but allows the children space for their own explorations in more SM sections, using her own interjections to continually synthesise their thinking into a bigger picture. In Class C, the structure shows the teacher moving from child to child in potentially a more traditional IRF style, though when the classroom management style is also considered, this demonstrates a subtle juxtaposition of ideas as the class build towards an agreed idea. In the next section, a micro-level analysis of these interactions unpacks the teaching further, as we move beyond participation structures into a close examination of what is actually being said, and how the patterns of dialogue by the teachers impact on their children's thinking.

5.2. The micro level analysis of the interactions

Analysing the interactions between teachers and children enabled a further deconstruction of the dynamics at play within the dialogic classroom. Starting with the streamlined SEDA coding scheme (Maine et al., 2020) the dialogic interactions were noted as the first analytical step. The WC discussions in the classrooms differed considerably in the number of turns, so we use percentages for them to be comparable across the three classrooms. Table 3 provides an overview of the application of our coding scheme to the transcripts of WC discussions in the three classes. Two+ code turns are indicators of where, what Rajala et al. (2012, p. 64) describe as "expanded responses", occur. The last column shows the ratio of turns taken by the teacher in comparison with the number of turns taken by children; the proportions are actually very similar across the three classes with slightly more turns in favour of the teacher in Class C.

In order to capture subtle dialogic moves that might otherwise be missed, we took an inductive approach to coding, providing an additional code where the existing scheme missed an important, if subtle, teacher move that acknowledged and encouraged a deepening of children's responses. Hence, we introduced a new code: ACK. The ACK code was used to denote places where a simple acknowledgement of an idea by a teacher had a dialogic function (and often led to extended contribution by the child). ACK might simply constitute *ok* or *yeah* to express an encouragement and/or an approval ranging from a simple "go on, the floor is yours to speak now" to a positive feedback (here of course also the prosodic features play a role). Utterances such as these would have remained uncoded in the original coding scheme; and interestingly in Howe and colleagues' work a similar coding of 'Agreement' moves was dismissed as 'uninformative' (2019, 475) for their study as it was not 'theorised as productive' (ibid). However, through our qualitative analysis, we found that even though they have very little propositional value, the pragmatic markers and encouraging evaluations captured with the ACK code were very important in driving the dialogue forward.

5.2.1. Exploring the most frequent teacher codes

Fig. 5 shows how the teachers coded turns were made up of different dialogic functions, including the new ACK code, and demonstrates how frequently it occurred. In order to unpack this further, Fig. 6 shows how the codes sometimes worked together in code sequences, and how ACK often led to further invitation, or elaboration.

Further investigation shows the impact of teacher turns that involve ACK, when analysing the breakdown of child responses that a teacher's ACK initiates (on its own or together with other codes). In Class C, the most frequent code (45%) by a child following a teacher's ACK is RS – reasoning (on its own or together with other codes). This shows the impact of even small acknowledgement on encouraging a child to develop their idea and deepen their thinking as exemplified in Table 4.

In this extract, Iris starts her reasoning (RS) after the initial teacher INV. Not visible in the transcript the teacher actually performs much extensive ACK as she nods throughout the whole RS of Iris (lines 50 to 55), the encouraging nods are verbalised on lines 51, 53 and 55. In terms of fluency, the teacher's *Yeah OK, Yeah* and *OK* are only very brief interventions that do not interrupt Iris's reasoning, but they serve to make Iris feel more confident in what she says.

The following extract also from Class C (Table 5) demonstrates a different function. Chris appears to be a more hesitant speaker than Iris. In line 146, there is a fall-rise intonation at the last word, which prompts the ACK from the teacher, encouraging Chris to feel confident to continue. During this, and again this is not marked in transcript, the teacher performs much more extensive ACK as she backchannels several times with very quiet, encouraging *hm*s. At the end, the teacher responds with ACK and EC in which she summarises what Chris said, which is then followed by INV for him to elaborate. The code sequence ACK + EC + INV is a very typical teacher response in this class, representing 19.7% of her codes (compared to 6% and 4.1% in the other classes), see also Fig. 6.

One of the typical rhetoric moves by the teacher in this class is to shift the dialogue forward through rounding-up a mini-discussion. ACK is thus a dialogue structuring device as exemplified in the following extract (11):

Table 3
Coding overview across the three classes.

	One-code turns	Two+ code turns	Teacher codes	Ratio of turns (teacher to child)
A	72%	28%	49.5%	0.98
B	65%	35%	47%	1.04
C	72%	28%	55%	1.20

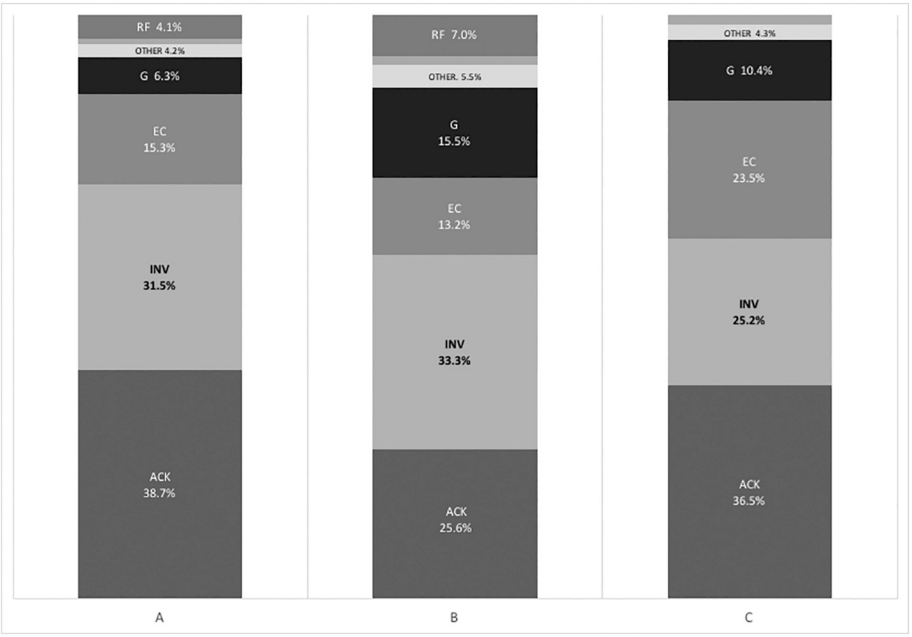

Fig. 5. Percentage make-up of coded turns.

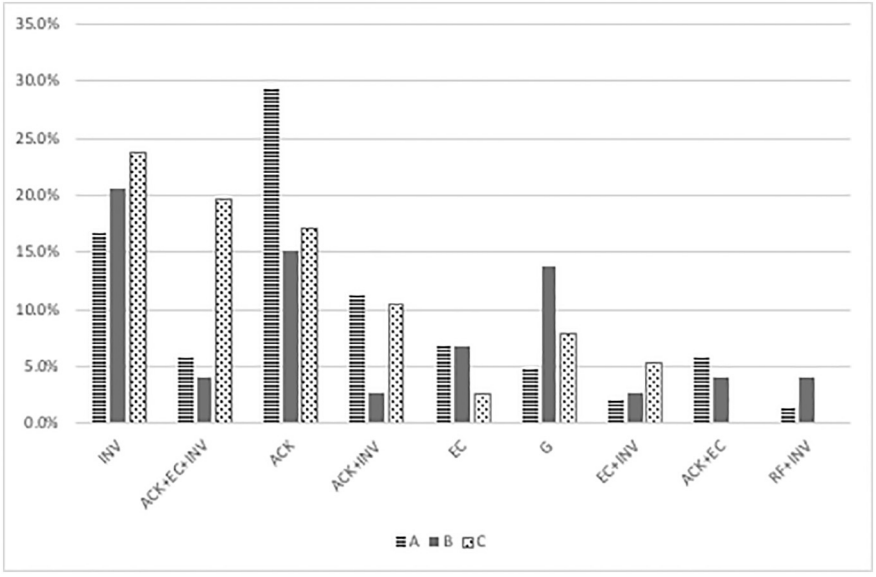

Fig. 6. The most frequent teacher code-sequences across the classes.

(11) Ah, interesting. So, you said, I'm not sure if it was a he or a she, and you said, He was doing ballet but dad wanted him to do boxing. Does anyone have another idea then whether the boy is a he or a she, a male or a female?

Similarly, although the Class B teacher uses the ACK code proportionally the least, 54% of these uses results in RS by a child. Though the typical brief ACK in the form of *oks* or *yeahs* is less frequent, the Class B teacher uses more very explicit and thus more emphatic and personal ACK, such as *fantastic* (4 times), *excellent, I like that, you're doing really well, I'm really impressed, interesting, I really liked* and *it's good to*….

Class A has already been shown to be different in terms of participation: the teacher speaks overall less than the children and there is a rich interaction network of invitations among the children (see Section 5.1). Here the teacher orchestrates the discussion with minimal interaction, signalling encouragement but letting the children take the stage (Table 6).

Table 4
Extract I from Class C.

Line no.	Speaker	Utterance	Code
49	T	You don't know? Go on, Iris, can you help?	INV
50	Iris	Well, I think the dad like was a bit annoyed, because at the start there was this like a frame and it had like a picture of it and it said Papa Boxing and it was like the dad boxing.	RS
51	T	Yeah, OK.	ACK
52	Iris	So, he probably was like a champion boxer, and I think the mouse is a girl, because like a girl could	RS
53	T	Yeah.	ACK
54	Iris	But it would probably prefer to do ballet, and it was wearing a sticky-out tutu.	RS
55	T	OK.	ACK
56	Iris	And, yeah.	

Table 5
Extract II from Class C.

Line no.	Speaker	Utterance	Code
145	T	So, yeah, OK. Chris?	ACK + INV
146	Chris	At first the dad, yeah, he said he felt a lot let down at the beginning	ACK + INV
147	T	Yeah.	ACK
148	Chris	But then, when he saved when his boy saved him […] he still felt a tiny bit let down but very proud as well, because he still kind of wanted him to be a boxer.	RS
149	T	Yeah, OK. So, he still kind of wants him to be, but OK. But would you say that the tolerance of the father changed throughout the film?	ACK + EC + INV

Table 6
Extract I from Class A (square brackets indicate overlapping speech).

Line no.	Speaker	Utterance	Code
331	Lily	[I think you can]	RS
332	Gina	[And boys can do] the same {unclear} things as girls.	O
333	T	Yeah. Yeah. Exactly.	ACK
334	Lily	I think it's also like you don't have to prove yourself to be like treated uhm like fair or like how or to be treated how you want to be treated	RS
335	T	Yeah	ACK
336	Lily	you should you should just be able to like do uhm what, like follow your dream without you having to, like, show everyone that you're really good at that thing. So, you can do it, because, just because they're really good at it or they're really bad at it, it doesn't mean they can't do it.	RS
337	T	Yeah	ACK
338	Lily	[Fabian], would you like to speak? (sees gesturing Fabian)	INV

In the example (line 333), the teacher uses emphasised ACK which prompts Lily's continued reasoning. On line 337 is yet another ACK by the teacher which has the 'wrapping up' function and Lily moves on to invite another speaker (line 338). Nearly half of the RS codes that occur in this classroom discussion are prompted directly or occur in close proximity to ACK. There is also a substantial proportion of RS that seemed to be uninitiated by any specific code, they occur as the dialogue unfolds based on the internal rules of 'building'; however, a third of these RS codes are voiced by one child who is a prolific contributor and network builder.

Not surprisingly, the second most frequent code across all three classes is INV. A high proportion of ACK followed by INV is of course apparent in a simple IRF exchange (Sinclair & Coulthard, 1975) with a brief acknowledgement of a child's idea before moving on to a new question directed to another child. A point of particular interest is that in Class A in addition to the teacher using INV the children also use it in the WC context. In this class, 11% of the INV codes are attributed to children. In comparison, only one INV is initiated by a child both in the Class C and Class B. This is significant to note as INV, whether it is an invite for someone to speak or asking a question, would more typically be assigned to teachers who would be navigating the discussion. The occurrence of these 'teacherly' actions by the children demonstrate a more symmetrical participation structure (Linell, Gustavsson, & Juvonen, 1988) or "ideal dialogue" (p. 426). These moves capture the ethos of the class where children feel enabled to take leading roles in the WC context in addition to the small group discussions.

Analysing the codes both individually and as code sequences allows for the nuanced differences of the teachers' approaches to become clearer. Whilst the participation structure analysis has already shown that the Class A children talk more than the teacher in the WC sections of the lesson, here we can see that she uses her turns to add continual encouragement and acknowledgement, which is enough to keep the children's ideas flowing, prompting them to reason further. For Teacher B, listening silently, then enthusing acknowledgement similarly promotes reasoning by the children. The analysis also confirms Teacher C's approach as she uses her turns to acknowledge, reframe and invite further responses in the shared endeavour of a whole class agreed idea.

5.2.2. Chains of dialogue

Key in our data are instances when the teacher continues the interaction with the same child, probing further for a deeper response. Codes clustered around EC are important here, as one idea is continued across turns. The EC code is used to show when speakers are extending or continuing an idea and include building, clarifying or adding extra information. Code sequences including EC account for 25% in Class A and B and 33% in Class C of the coded teacher turns and offer the opportunity for extended probing (particularly when associated with INV-invitations). As Bloome et al. (2005) and Lefstein et al. (2015) note, the consideration of pattern of turn-taking is important and in our data we found that examining chains of dialogue gave further insight. In the following extract from the Class A (Table 7), the teacher and Becky are engaged in a lively conversation. Becky links (L) to a previous classroom discussion with her own observation, the teacher encourages this contribution by a simple *ok* (line 416) and Becky resumes. The teacher's encouragement continues on line 418 with a familiar parallel, here coded as L, and Becky builds on that with RS (line 419). The teacher acknowledges this idea more extensively and invites further thoughts (line 420). Becky and Mark extend the idea (EC) prompting a contribution from Mark (line 426), which is picked by the teacher on line 427. Mark extends the initial idea into a reasoned one (line 428). This is again acknowledged by the teacher who now opens up the discussion to the whole class (line 429).

It has already been established that in Class A, the participation structures mean that children are more included in the management of the class discussion, naming each other more frequently and also moving the dialogue between themselves, with the teacher using only minimal ACK moves to keep the discussion on track. Comparing chains of dialogue in Class B and Class C leads to further insight, however. In Class B the teacher follows-up with the same child in 46% of the turns, extending her interactions with individual children to elicit deeper thinking, as typified in the following exchange (Table 8), where she uses ACK and INV to encourage Erin to extend her idea. This results in several reasoning turns from Erin as she unpacks her idea over a series of turns.

In Class C, continuing a discussion with one child happens far less frequently, only 24% of the time. It is worth remembering, however, that this class has the shortest incidence of WC teaching, more often being split into small groups (see Fig. 2 in Section 5.1.2). Diving into the WC data further reveals that whilst the children change, the chain of dialogue is continued as the idea is built collaboratively. Considered alongside the participation structures of this class, where the networks show the teacher as a central point, the dialogic style becomes more apparently focused on co-construction, with the idea belonging to the whole class. This is further evidenced by the teacher's use of collusional language 'we' and her open invitations to the whole class rather than individuals shown in the sequences that follow (Table 9):

Whereas the use of second voice by the teachers in Class B and Class A is part of the management of the discussion and wider learning trajectory (seen in codes related to G – guiding the class, L – linking to prior learning, and RF – reflecting on talk) in Class C it is additionally associated with the extension of ideas. Even 'can you help?' implies 'us' as the teacher encourages the building of a collaborative viewpoint.

6. Discussion

A linguistic ethnography approach to the analysis of three dialogic classroom has enabled the nuanced differences between the three teachers' approaches to be illuminated. In all three classrooms talk is a central feature, children's engagement is prioritised and the co-construction of ideas is at the fore. However, the teachers' interactions indicate differences in their operating principles or value orientations (Aukerman & Boyd, 2020; Maine & Hofmann, 2016), with goals focused on language, ideas or participation and this goes some way to explain their different approaches.

The LE analysis shows that whilst Class A had more whole class discussion this operated more like a small group. Here the children took the stage and the teacher used minimal interaction of ideas, yet crucial encouraging actions to push them to deepen their thinking. As the norms for classroom engagement were well established, she could listen and gently nudge the children, stepping in to remind them of how they might manage the task: 'How are we going to manage this?' she asks.

Analysis of the children's moves show they took the role of the teacher too, unusually inviting each other to speak in the WC context: 'Fabian would you like to speak?' says Lily when she sees him gesturing *build*. Here the goal of equal participation was prioritised, with roles and responsibilities shared among participants. The teacher in Class A might not have included much small groupwork because her WC discussion operated like a small group. Her approach was different to the others, though might represent the theorised ideal (Howe et al., 2019) of whole class learning as she achieves the closest structures to the symmetries in talk described by Linell et al (1988).

In Class B, the teacher is more explicit in her acknowledgements and positive encouragement and focuses the whole first section of the discussion on the talk itself (highlighted by Wilkinson et al., 2017 as a key dialogic feature). This leads the children to reflect on their interactions before moving the content ideas forward. Analysis of the transcripts shows fewer name references by this teacher but this is because she engages for several turns at a time with individuals. Whilst she seems oriented towards the production of good ideas, she does so through extending the ideas of individuals, pushing their thinking and allowing them time to develop. For Teacher B the extended probing of ideas from one student is central to her practice (Nystrand et al., 1997), and this allows her to cultivate meaningful interactions with individuals.

Class C differs again. At first glance, the teacher's central positioning might lead an observer to conclude that her style is one of traditional IRF (Sinclair & Coulthard, 1975), but the LE analysis allows for a deeper understanding of her practice. The analysis uncovers an orientation towards the collaborative goal of knowledge construction, meaning that she juxtaposes ideas, inviting children to compare and contrast them, a move well established in the literature for supporting the development of thinking (see Howe et al., 2019). She uses the WC discussions to model how ideas develop, allowing longer periods of SM discussion for the children to work as a group (Mercer & Littleton, 2007).

Table 7
Extract II from Class A.

Line no.	Speaker	Utterance	Code
415	Becky	I think, I watched this movie, it's a bit like {unclear} but it's called Mirror and there were dwarves, they like steal from the RICH.	L
416	T	OK	ACK
417	Becky	And then they still steal, but the poor people, they have like nothing, and they give it to the poor. [So, they're]	L
418	T	[It's a bit Robin Hood-like].	L
419	Becky	So, they're a bit hero-like and a bit not hero-like.	L + RS
420	T	That's interesting, because they are, that's VERY interesting, because the poor people WOULD call them heroes, wouldn't they?	ACK + INV
421	Becky	[But the]	EC
422	T	[But the] rich people would call them criminals and robbers.	EC
423	Becky	[And the rich people]	EC
424	Mark	[So, they're kind of anti-heroes].	EC
425	Becky	the rich people were [sort of stealing the]	EC
426	Mark	[They're kind of] anti-heroes.	EC
427	T	Kind of? What? Go on, Michael.	INV
428	Mark	Anti-heroes are basically like heroes who are sometimes good but also sometimes bad.	RS
429	T	OK. Interesting. (to class) And is that OK?	ACK + INV
430	Class	(over-talking, some yes's, some no's)	

Table 8
Extract from Class B.

Line no.	Speaker	Utterance	Code
120	T	…What do you think the reasons were for him encouraging his son to follow a different path from the one he wanted to. (Erin signals she wants to speak). Erin.	INV
121	Erin	I think that he wanted hmm his son to be a boxer because it was what he wanted him to be. I don't think […] that […] he wanted the son- I don't think the son wanted to be a boxer from what things looked like, because he- […] {UNCLEAR}, if the dad thought it was best for him, now- I don't know. It's hard to explain, but-	RS
122	T	You're doing really well. Keep going.	ACK + INV
123	Erin	He doesn't- […] It looked like he never really got out the stuff for boxing, […] [because]	EC + RS
124	T	[So] the stuff was all around him, [but]	INV
125	Erin	[Yeah, but] he was almost like they were under his bed.	EC + RS
126	T	Why do you think they were there?	INV
127	Erin	Because he didn't use them.	RS
128	T	OK	ACK
129	Erin	He used the ballet.	O
130	T	So, why were they IN the room if he didn't use them? Where might they have come from?	INV
131	Erin	Well, the dad probably put them in there to make him practise.	RS

Table 9
Extract III from Class C.

Line no.	Speaker	Utterance	Code
34	Bethany	I don't know if it was a he or a she.	O
35	T	Yeah.	ACK
36	Bethany	But that mouse, it liked to do ballet, but its dad wanted it to do boxing.	EC
37	T	Ah, interesting. So, you said, I'm not sure if it was a he or a she, and you said, he was doing ballet but dad wanted him to do boxing. **Does anyone have another idea** then whether the boy is a he or a she, a male or a female?	ACK + EC + INV
41	T	OK. **Does anyone want to expand** on what Ethan's just said, because he thinks it's a boy and he's got a reason as to why, but **would anyone like to add to it**? (Frieda hand up) Frieda, do you want to add to it?	ACK + EC + INV
47	T	Yeah? OK. And Bethany you also said that you felt hat the dad felt a bit what?	ACK + INV
48	Bethany	Hmm, like, I don't know.	O
49	T	You don't know? (Iris Hand up) Go on Iris, **can you help**?	INV

There were limitations to all three approaches of course. In their endeavours to include multiple voices, or to enable the children to manage the discussion for themselves, the teachers had to make decisions about when to challenge ideas without demotivating children's participation. The dialogic ethos means that everyone feels enabled to share their view, but it also needs to accommodate challenging those views and teaching children to not just accept but to evaluate multiple viewpoints. As researchers it is easy to pore over transcripts of dialogue and identify places where teachers might have made more impactful choices in how they responded to children, yet it is important to remember that decisions like these in a classroom are made in 'real time' and might have been made

differently at another time.

Much of this paper has been about carefully dissecting the linguistic differences between the teachers to understand their craft. However, there is one very important feature that is true of all the teachers, and that was apparent from the moment of stepping into the classroom as an observer. Carter (2004, p. 109) describes the tone of "affective convergence" as shared viewpoint. This social cohesion is the glue that bonds these classes and gives the children shared goals with their teachers. Each teacher uses second voice to establish, 'we are all in this together' whether they are prioritising the participation structures, the goals of talk or the content of the ideas. Each teacher allows themselves to be human and warm, with references to their own fallibility and 'in-jokes' with the class:

> *'I'm doing really well, because there's been mention of this as being like The Greatest Showman and I've not started singing on camera, so that's EXCELLENT news here!'*

The LE approach allows for features that might otherwise be overlooked to come to the fore, particularly when setting the different layers of analysis next to each other. Coding the smallest hints of encouragement dismissed in other studies (eg. Howe et al., 2019) has been shown to be important, as their impact on the resulting talk is evident. Searching for subtle linguistic tools highlights the power of 'we' as an inclusive, collaborative device. Zooming out to consider the participation structures allows the norms of the classes (Hofmann & Ruthven, 2018) to be considered. At the centre of these dialogic classrooms is the strongest sense of 'us'. This is the feature that enables children to share their ideas confidently and without fear of peer criticism. Researchers have described authentic dialogue and questioning as they unpack the impact of educational dialogue on learning, but here we find authentic *relationships* not just questions (Nystrand et al., 1997) between class participants be they children or teachers to be central to the dialogic experience. Aukerman and Boyd (2020) remind us of the danger of the reducing dialogic analysis to a dissection of functions and features, and the LE approach we have taken here strives to address this. If teachers are to reflect on their own dialogicality in classes, then understanding that it is more than a tick box of procedural tools is crucial. We need to talk about dialogic teaching more holistically as it involves people, personalities and relationships, but at the same time we can draw on the "insights and rigour of linguistics" (Lefstein & Snell, 2020) to help us do that.

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