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Classroom interaction and student learning: Reasoned dialogue versus reasoned opposition

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Abstract
Analyses of classroom interaction have frequently spotlighted reasoned dialogue as beneficial for student learning, and research into small-group activity amongst students offers empirical support. However, the evidence relating to teacher-student interaction has never been compelling, and one of the few studies to investigate the issue directly detected no relation whatsoever between reasoned dialogue and learning outcomes. The present paper outlines additional data from that study, together with evidence from elsewhere, with a view to interpreting the results relating to reasoned dialogue. Account is taken of the generally positive evidence obtained from studies of group work amongst students. The key proposal is that it may be reasoned opposition that promotes learning rather than reasoned dialogue in general, and reasoned opposition is probably rare when teachers are involved. The proposal has implications for both the dialogic and the argumentation perspective upon classroom interaction, and these are discussed.

Keywords: Classroom dialogue; Student learning; Dialogic education; Argumentation; Reasoned dialogue; Reasoned opposition

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Introduction

Two theoretical perspectives have come to dominate research into the implications of classroom dialogue for student learning. One of these perspectives is aligned with the concept of 'dialogic pedagogy' (sometimes 'dialogic education' or 'dialogic teaching'), a concept that was arguably first delineated by Freire (e.g.,1970). In Freire's writings, the concept is anchored around student empowerment, and hence dialogue where students express and discuss their initial understandings of the issues at stake and, in collaboration with teachers, work gradually towards mutually acceptable and co-constructed analyses. Whilst it would be overly simplistic to treat subsequent research from the dialogic perspective as homogeneous, the notion of empowerment remains central: 21 of the 47 chapters in *The Routledge International Handbook of Research on Dialogic Education* (edited by Mercer et al., 2020) offer a definition of 'dialogic education', and in 20 of those 21 chapters the definition revolves around creating space for, respecting, and building upon the multiple 'voices' that exist in classrooms.

By contrast, the second perspective is rooted not in dialogue nor in student learning but in discourse, specifically the discursive moves that Toulmin (1958) regarded as constituting an argument. These moves include making claims, supporting claims with evidence, and offering rebuttals, and are as possible in monologue, written text and individual imagination as they are in dialogue. Nevertheless, from a review reported in Asterhan and Schwarz (2016), there is now an identifiable body of classroom-based research, which spotlights the argumentation that occurs during dialogue specifically, and examines its implications for what students learn (including their mastery of argument in written text – see, e.g., Larrain et al., 2021; Matos, 2021). Typically, this research focuses upon claims, evidence, rebuttals, counterarguments and so on when opposing views are expressed during dialogue. Often (but certainly not always), the interest is in dialogue where opposing parties attempt to persuade each other to change their opinions (Felton et al., 2019; Iordanou & Kuhn, 2020; Matos, 2021).

Research into classroom dialogue from these two theoretical perspectives has resulted in many potentially productive features being highighted, and prominent amongst these is the expression of reasons. At least 15 chapters in Mercer et al.'s (2020) handbook endorse this feature from the dialogic perspective, usually viewing it as part-and-parcel of the resolution of differences needed to achieve co-construction. Toulmin's (1958) foregrounding of evidence (through his concepts of 'ground', 'warrant' and 'backing') has guaranteed the centrality of reasoned dialogue within the argumentation tradition, perhaps even more strongly than within the dialogic (Rapanta & Felton, 2021). Certainly, the provision of reasons is so significant for van Eemeren et al. (1996) that they locate this within their definition of what it means to argue, specifically, 'Argumentation is […] aimed at increasing (or decreasing) the acceptability of a controversial standpoint […] by putting forward a constellation of propositions intended to *justify* (or refute) the standpoint' (p.5, my italics).

Reasoned dialogue also emerged as a key criterion in a validation exercise conducted during the study reported in Howe et al. (2019). Here, transcripts of the teacher-student dialogue occurring during five (roughly 60-minute) lessons were sent to eight experts in the field, including representatives of both the dialogic and argumentation perspectives. The experts were asked to rank the transcripts for what, from their own perspective, looked to be the value of the lessons for student learning. There was a high degree of agreement across the rankings (W=0.66, p<.001). Moreover, of the two dialogue features that significantly predicted the experts' mean rankings (r_s=.76, p=.02), one was the ratio of reasoned turns at talking to what were called 'non-dialogic turns', the latter being turns that contemporary researchers would regard as non-productive regardless of their theoretical perspective. As they worked through the transcripts, six experts also noted features that struck them as relevant. There was variation over which features were

mentioned. For instance, some but not all experts referred to building upon student engagement and shared knowledge. However, all six accorded considerable significance to the expression of reasons.

So, reasoned dialogue in classrooms is widely believed to be productive as regards student learning, but how firmly is this belief grounded in evidence? This question provides the starting point for the present paper, hence becoming the focus of the first of the sections to follow. Research is summarized that documents positive consequences from reasoned dialogue when this occurs during group work amongst students, while at the same time indicating little impact from reasoned dialogue when teachers are involved. Taking this to mean that reasoned dialogue may not in itself be sufficient to support student learning, a subsequent section explores what else is required and suggests that a key factor may be whether or not the reasons offered during dialogue are in opposition. While this suggestion is presented merely as a hypothesis to be tested in the future, it is not devoid of consistent empirical evidence, and this will be discussed. Having spotlighted reasoned opposition, the paper will conclude by considering the implications for the dialogic and the argumentation theoretical perspectives. It will claim that while qualification of widely held views would be necessitated, the implications may, paradoxically, be closer to the ethos of both perspectives than those associated with reasoned dialogue in general.

Reasons and Classroom Learning

Starting then with contexts where students work together in small groups without immediate teacher involvement, there are, by now, no grounds for doubting that reasoned dialogue can promote positive learning outcomes. I have myself been directly involved in over 30 relevant studies here, covering mastery of general reasoning skills as well as learning in curriculum subjects like science, mathematics, the humanities, and the social sciences. Child, adolescent, and adult learners were all involved (see Howe, 2021, for the most recent summary of these studies). Each study required students to collaborate over educationally relevant tasks about which they typically held differing opinions. While some studies were conducted out of class, a fair number took place in authentic classroom settings. In many cases, the relations between group dialogue and student learning were examined, and whenever this was done, the incidence of reasoned dialogue proved to be positively predictive of learning gain.

Reasoned dialogue also features prominently in Mercer's concept of 'exploratory talk', and numerous studies conducted within or inspired by Mercer and colleagues' *Thinking Together* programme endorse the value of such talk when this occurs during small-group interaction amongst students (see Mercer & Littleton, 2007, for a summary here). Paralleling what my studies have shown, exploratory talk appears to promote both general reasoning and curriculum mastery. This form of talk is also closely related (including over reasoned dialogue) to Asterhan and Schwarz's notion of 'dialectical argumentation', and Asterhan and Schwarz's 2016 review outlines many studies conducted by themselves and others that demonstrate the value of dialectical argumentation for students outcomes. Several of these studies pinpoint reasoned dialogue specifically (see Asterhan & Schwarz, 2016).

Nevertheless, for all the value of the dialogue it can stimulate, small-group work amongst students is not the major forum for teaching and learning in classrooms. The axis around which classrooms revolve is teacher-student/s interaction, yet while there have been numerous investigations of dialogue in that context (Howe & Abedin, 2013), conclusive evidence about the impact of reasoned dialogue is hard to detect. As detailed elsewhere (Howe & Abedin, 2013; Howe et al., 2019), one reason is that many analyses of teacher-student dialogue have been descriptive rather than concerned with consequences. Another is that when consequences have been addressed, it is typically the consequences of packages of features rather than features taken separately, Thus, even when the package includes reasoned dialogue (as, e.g.,

with Alexander et al., 2017; O'Connor et al., 2015; Osborne et al., 2013), its contribution to learning outcomes cannot be isolated.

However, one study that did isolate relationships is the one reported in Howe et al. (2019). In brief (but see the 2019 publication for details), this study was conducted in 72 classrooms located in primary schools spread across England. All classrooms were Year 6 or Year 5/6 composites (students aged 10 to 11 years), while also being socio-economically and ethnically diverse (0-100% of students per class eligible for free school meals; 0-96% from minority ethnic backgrounds). Lessons were video-recorded in each classroom, with the sample for analysis comprising two lessons per classroom (i.e., 144 in total). The sample was chosen to ensure that the lessons from each classroom covered two curriculum subjects, specifically any two from literacy, mathematics, and science. The 72 teachers who ran the lessons had been working with the students from the start of the school year, and consistent with UK policy which largely eschews subject specialism at the primary school level, covered most (and usually all) of the teaching throughout the year.

All teacher turns at talking during the target lessons were coded using a scheme adapted from Hennessy et al. (2016 – see also Hennessy et al., 2020), as were those student turns that occurred during interaction with teachers. Student-student interaction that occurred without teacher involvement, for instance, during group work, was not coded via the scheme, but as detailed below, it was taken into consideration. The coding scheme covered a wide variety of dialogue features in addition to reasons, but reasons were included, with turns regarded as reasoned when they addressed explanations or justifications of own or another's contribution or speculated, predicted, or hypothesized with grounds given. Initially, reasoned turns were sub-divided according to whether they invited or provided reasons and whether they were taken by the teacher or a student. However, the frequencies of these subcategories were so strongly inter-correlated that they were combined into a single 'reasoned' category, with two variables derived for purposes of analysis: the absolute frequency of reasoned turns across the two lessons in each classroom (taking account of variation in lesson length), and the ratio of the frequency of reasoned turns to the frequency of non-dialogic turns.

Using multi-level modelling to respect the nesting of students within classrooms, analyses explored whether variation across classrooms in the usage of the two variables predicted end-of-year measures of student outcome. Five of the six outcome measures addressed student learning: 1) Scores on three nationwide and statutory Standardized Achievement Tests (SAT), covering mathematics, reading, and SPAG (spelling, punctuation, and grammar); 2) Scores on a specially designed test of conceptual and procedural knowledge in science; 3) Scores on a specially designed reasoning test, covering the ability to differentiate facts from opinions and reasons from conclusions, to draw inferences, and to compare and evaluate reasons (see Ahmed et al., 2021, for details of the latter). All five measures were wide-ranging in scope, and in covering both curriculum mastery and general reasoning, mirrored the subject matter of the afore-mentioned investigations of group work amongst students.

Modelling took relevant baseline attainment (assessed through start-of-year tests) into consideration, along with further factors (assessed through questionnaires or direct observation) that, by virtue of being related to both dialogue and outcome, could potentially confound interpretation of dialogue-outcome relations. Coefficients were obtained, which indicated the extent to which the two indices of reasoned dialogue predicted each of the outcome measures, and Table 1 reports the statistical significance of those coefficients. As is clear, there was no predictive relationship whatsoever. Modelling also examined the predictive value of the two indices in interaction with other dialogue variables in Howe et al.'s (2019) set, and once more the coefficients that emerged were consistently non-significant (*p*s=.12 to .88, *M*=.42).

Overall then, the message from Howe et al.'s data is that reasoned dialogue during teacher-student interaction does not predict student learning outcomes, and as such appears to play no role in supporting those outcomes.

Table 1: Significance of the relation between indices of reasoned dialogue and measures of student learning

	Reasoned	**Reasoned: Non-Dialogic**
Maths SAT	$F(1, 59.17)=0.10$, $p=.75$	$F(1, 60.01)=0.15$, $p=.70$
Reading SAT	$F(1, 67.34)=0.08$, $p=.78$	$F(1, 68.85)=1.42$, $p=.24$
SPAG SAT	$F(1, 64.88)=0.18$, $p=.67$	$F(1, 66.47)=0.61$, $p=.44$
Science	$F(1, 44.59)=0.28$, $p=.60$	$F(1, 44.29)=0.96$, $p=.33$
Reasoning	$F(1, 69.88)=0.26$, $p=.61$	$F(1, 70.07)=0.17$, $p=.68$

When the results were so consistent, it is hard to dismiss them as artefactual. This is perhaps particularly the case given other features of the dataset. First, the dataset was substantial: 10,991 reasoned turns were identified across the 144 lessons. Second, as detailed in Howe et al. (2019) theoretically interpretable relationships were detected with other variables. Specifically, the frequencies of elaboration (building on, evaluating, elaborating, or clarifying own or other's contribution) and querying (doubting, challenging, rejecting, or disagreeing with a statement) were positively associated with some of the outcome measures, so long as levels of student participation were high. This resonates with the dialogic perspective's emphasis upon empowerment and co-construction. Third, there are grounds for thinking that, in contrast to teacher-student interaction, reasoned dialogue during small-group work amongst students was just as productive within the recorded lessons as it has proved in earlier studies. With the focus upon dialogue involving teachers, the quality of group work was not treated as a primary factor in Howe et al.'s analyses but rather regarded as a potential confound and assessed with that in mind. Reasoned dialogue was included amongst the factors contributing to the derived index of group work quality. Howe's (2021) follow-up study using the Howe et al. dataset indicates that small-group work took place in 71 of the 72 classrooms, and the index of its quality was positively and significantly predictive of student performance on Mathematics SAT, Reading SAT, SPAG SAT and the Reasoning test.

Nevertheless, the Howe et al. (2019) paper is a report of a single study, and questions must be raised about the representativeness of the results. Are the results specific to that study, or are they indicative of something more general? Such questions are critical when considering how deeply to delve into interpretation and implications, yet they are also hard to answer given the dearth of comparable research. As noted, research into teacher-student dialogue has seldom gone beyond description, and even when it has, the effects of specific features are hard to isolate. Howe et al.'s systematic approach to broader confounds is also unusual. Yet, even in the absence of complementary data, the size of Howe et al.'s sample and its demographic heterogeneity provide some grounds for thinking that their results may be applicable across England, and arguably across the UK as a whole. As for other countries, the truth is even more elusive, yet I personally should not be surprised to find a degree of generalizability. There is certainly no evidence at present against the results being replicated elsewhere. Moreover, the studies of dialogue during small-group work, with which this section began, are international. Therefore, the fact that Howe (2021) found Howe et al.'s group-work data to be consistent with those studies suggests that their findings about teacher-student interaction may also resonate cross-culturally. So, while I accept unreservedly that

additional research is needed, the possibility that Howe et al.'s findings about reasoned dialogue apply more generally seemed, to me at least, sufficiently plausible to warrant further analysis. The section to follow will summarize the results of my own attempts at such analysis.

Possible Relevance of Reasoned Opposition

I took the key issue not merely to be one of explaining why reasoned dialogue looks to be non-productive when this occurs during teacher-student interaction, but rather of ascertaining why this is the case when such dialogue is manifestly facilitative during small-group interaction amongst students. The issue is especially germane (and perplexing) when the subject matter of research in the two contexts overlaps, both examining curriculum mastery and general reasoning, and coupling Howe's (2021) follow-up study with the Howe et al. (2019) research, the difference seems to be detectable within the same dataset. Crucial to resolving the issue is achieving clarity over two possibilities, the first being that reasoned dialogue is inherently conducive to learning, but its potential can be blocked during teacher-student interaction, and the second being that reasoned dialogue is not in itself sufficient to trigger learning but rather depends upon some additional factor/s whose probability is greater during interaction amongst students than when teachers are involved. Research with very young children points very strongly against 'inherent conduciveness', thus suggesting that the second possibility is the one to pursue.

Specifically, Bloom and colleagues have established that most children start to express reasons shortly after their second birthday (see, e.g., Bloom & Capatides, 1987; Hood & Bloom, 1979), almost always when talking about actions. Young children offer reasons for proposed actions (e.g., 'Get another one; it dirty', 'Can't do it; you do it'), ongoing actions (e.g., 'I'm putting medicine on the lamb's leg cause he had a boo-boo', 'Take off my socks because it's not cold'), and states stemming from past actions (e.g., 'I don't have any more tape; it's all used up now', 'Too stuck; I can't do it'). Importantly, five of these six examples (like most others in the Hood and Bloom article from which these six are extracted) were the *initiating* contributions to dialogues with adults. In other words, they were not used imitatively, defensively, or to clarify. Equally, they were not in response to 'how' or 'why' questions. In fact, Bloom's team did not detect reasons in response to questions until several months after reasoned remarks were first observed: adults probably start to ask 'how' and 'why' because they realize that children can express reasons, not the reverse.

In any event, when these early reasons typically lie within initiating contributions, there would appear to be two (and only two) possible interpretations of their function. The first is that they are purely declamatory, perhaps expressing children's pleasure in newly learned linguistic constructions or their interest in causal connections. The second is that reasons are included to add force to requests and claims in order to boost their impact upon their recipients (and presumably to secure compliance). Most likely, the use of reasons with both of these functions will be detectable across corpora of utterances from any individual child. With neither function, though, is the focus on the *security* of the child speaker's own knowledge and understanding. Since the latter focus is obviously required for any learning to occur, it becomes almost self-evident that when reasons are first expressed, their use cannot, in itself, be conducive to the learning of those who express them.

Assuming then that reasoned dialogue is not inherently conducive to learning but requires something additional for learning to be triggered, a plausible source for this additional factor is the opposition that children will sometimes encounter. Requests and claims will sometimes fail to achieve their intended impact, even when supplemented with reasons, and failure will sometimes result in opposition. Moreover, opposition may be coupled with reasons that contrast with those that the child has offered. 'Take off my socks because it's not cold' may trigger 'But we're going to the park, and it's cold outside, so keep

them on'. 'Too stuck; I can't do it' may prompt 'It's not really stuck, just pull a bit harder'. Sometimes such retorts will be summarily rejected (e.g., 'It's *not* cold', 'It *is* stuck'), but sometimes they will initiate a rethink (e.g., 'I'd better keep my socks on then', 'Well, I'll try once more') and here, in a nutshell, something will have been learned. Moreover, because this learning will include material covered in the reasons (e.g., the weather, resistance to pull), the contrasting reasons will have contributed. Of course, opposition without reasons (e.g., 'Take off my socks because it's not cold', 'No, keep them on') could, in theory, also trigger reflection on the contents of reasons and perhaps learning too, but with the focus firmly on the proposed action rather than the rationale, reflection and learning seem less likely.

Assuming then that reasoned dialogue is not inherently conducive to learning (with this 'natural' potential sometimes blocked), but rather dependent on something additional for any positive effects, the suggestion here is that this additional factor may be reasoned opposition. Crucially in the present context, research from the argumentation perspective conducted by Larrain and her colleagues indicates that the suggestion need not be limited to two-year-olds in informal settings but is also applicable with older children in classroom environments. This research includes a study (Larrain et al., 2019) where students from eight classes were videotaped while they worked with teachers or in small groups on the topic of physical forces. Dialogue coding differentiated arguments (where reasons and justifications were used to support claims) from counterarguments (where reasons and justifications were used to oppose arguments or to support claims that had previously been opposed). Defined in this manner, arguments will not necessarily have been located within reasoned opposition, but reasoned opposition is inherent within the very concept of counterargument. Larrain et al. found that the expression of counterarguments was positively predictive of student progress, but the expression of arguments was unrelated.

In a subsequent case study focusing on the interaction amongst five students, Larrain et al. (2022) examine relations between counterargument and the accuracy of group solutions. During the second of six sessions around the topic of natural selection, argumentation, in general, occurred with high frequency, and 71% of relevant moves included counterargument. Argumentation was rare in the third, fourth and fifth sessions, and counterargument virtually non-existent, yet after a dip in performance during the third session, accurate group solutions were obtained in the fourth and fifth sessions. These results are consistent with the supposition that it was the reasoned opposition inherent within counterargument that drove growth, while also implying that the students needed time to reflect and consolidate before their gains were secure. The latter is further suggestive of the delayed benefits from small-group interaction amongst students that my colleagues and I have detected on many occasions (e.g., Howe et al., 1992, 2005; Tolmie et al., 1993), sometimes (anticipating recent evidence for 'productive failure' – see, e.g., Kapur, 2008) after group solutions that were actually worse than those that participating students produced individually at pre-test.

The research of Larrain and colleagues must be treated with caution: the 2019 work is relatively small-scale and the 2022 case study is open to alternative interpretations. Nevertheless, the research does add credence in educationally relevant settings to the present spotlighting of reasoned opposition. Thus, returning to what was flagged above as the key issue, this suggests merit in asking whether the focus here on reasoned opposition does in fact help to explain why reasoned dialogue can prove inconsequential in teacher-student interaction despite its well-documented relevance in small-group settings. Is it possible, for instance, that despite the high frequency of reasoned teacher-student dialogue that Howe et al. (2019) document, reasoned opposition is actually quite rare when teachers are involved? Is it also possible that reasoned opposition is relatively frequent during small-group work amongst students?

Certainly, there is no difficulty in seeing how classroom dialogue can be rich in reasons but nevertheless divergent over reasoned opposition. Take the four extracts in Appendix 1 for example, all recorded during previous studies of mine. Reasons are plentiful in all four and Extracts 1 and 2 contain repeated instances of the reasoned cut-and-thrust that characterizes reasoned opposition. However, Extract 3 lacks reasoned opposition altogether, for while Laura expresses reasons, her reasons are never explicitly opposed. Cathy hints at the incompleteness of Laura's explanations, but she does not oppose these with reasoned contributions. In Extract 4, Jamie and Sadie both express reasons, and their reasons (and proposed task solutions) differ. However, Tara's interventions mean that the contrast between Jamie and Sadie lacks immediacy, and when both students respond to Tara rather than to each other, the contrast between them may scarcely have been noticed. Here too then, it is hard to characterize the exchange as reasoned opposition. Importantly perhaps, the participants in Extracts 1 and 2 are all students, 17-year-olds in Extract 1 and 10-year-olds in Extract 2. However, Cathy in Extract 3 and Tara in Extract 4 are teachers, in both cases working with 10-year-old students.

So, how accurately do the four extracts typify the contrast between interaction within small groups of students and interaction with teachers? Certainly, the studies summarized earlier demonstrate that sequences like Extracts 1 and 2 abound within productive student groups. However, the current absence of directly relevant research makes the typicality of Extracts 3 and 4 as regards teacher-student interaction harder to judge. Nevertheless, what is clearly a significant barrier to contrast of reasons within the two extracts can be assumed to be prevalent, namely the fact that student reasons in those extracts were mainly in response to teacher invitations. Reasons were invited in Howe et al.'s (2019) dataset at an average rate of one invitation every six minutes, with invitations usually involving 'why' or 'how' questions. In-depth analyses of a 50% sample of those invitations reported in Vrikki et al. (2019) indicate that 94% were made by teachers. Furthermore, as indicated already, there was a very high correlation (in fact r=.87, p<.001) between the frequency with which teachers invited reasons and the frequency of reasoned contributions from students, suggesting that a large proportion of the latter were in response to teachers. Finally, the failure illustrated in Extract 4 to spotlight contrasting reasons, even when these occur, must also be typical. Howe et al. coded all instances where reasons were explicitly contrasted using a variable that they termed 'Reasoned Co-ordination'. Instances of this variable were extremely rare, with only 17 detected in 78,391 coded turns.

All in all then, there is presumptive (although certainly not conclusive) evidence in Howe et al.'s dataset that reasoned opposition is rare in teacher-student dialogue, when as noted previous research has shown it to be prevalent during productive small-group interaction amongst students. So, if opposition is genuinely required to make reasoned dialogue conducive to learning, it seems reasonable to hypothesize that the scarcity of opposition during teacher-student interaction may underpin the inconsequentiality of reasoned dialogue within that context that Howe et al. (2019) document and that may be found more widely. If the hypothesis is substantiated, one probable consequence would be a need to move the focus of research in the field from reasoned dialogue in general to reasoned opposition in particular. The next (and concluding) section discusses some of the wider implications of doing this, with emphasis on messages for the two theoretical perspectives with which this paper began.

Implications and Further Issues

Perhaps the first point to note is that even though the contemporary literature focuses upon reasoned dialogue, and not reasoned opposition, reasoned opposition may actually be closer to the ethos of both the dialogic and the argumentation perspective than its more general counterpart, at least as, from data presented above, the latter is commonly practised during teacher-student interaction. The dialogic perspective revolves around student empowerment and, as Extracts 1 and 2 illustrate, reasoned opposition

involving students is clearly empowering. However, there is nothing self-evidently empowering about students offering reasons in response to chains of questions, which it is suggested may be the norm as regards reasoned dialogue involving teachers. Indeed, such chains are tantamount to the first two moves in classic initiation-response-evaluation (IRE) sequences (e.g., Mehan, 1979; Sinclair & Coulthard, 1975), this time applied to reasons. Most writers who adopt the dialogic perspective are extremely critical of teacher reliance upon IRE, regarding this as inculcating student passivity rather than their empowerment.

Likewise, insofar as the argumentation perspective is focused upon dialogue, which, as noted earlier, is not necessarily the case, the spotlight is ostensibly upon difference and opposition, self-evidently present during reasoned opposition. Moreover, as also noted, the concept of counterargument, which is widely emphasized from the argumentation perspective, is linkable with the notion of reasoned opposition. By contrast, and extrapolating from Extracts 3 and 4, chains of 'why' or 'how' questions from teachers followed by reasoned responses from students look to inhibit the expression of difference, opposition, and counterargument rather than facilitate this. So, while it is easy to find researchers who align themselves with the argumentation perspective but champion reasoned dialogue in general and not reasoned opposition, it is the latter, and not the former, that may fit most closely with the perspective's presumptions.

However, even if the present emphasis upon reasoned opposition is accepted as resonant in principle, issues of relevance to the two perspectives remain to be resolved, which from the argumentation perspective, largely revolve around the precise relationship between the notions of reasoned opposition and counterargument. This is despite the obvious relatedness of the two notions. Normally in the relevant literature (including the Larrain et al., 2019, the study summarized above), a strong and essentially linear relation is envisaged between arguments and counterarguments; that is, arguments need to be clearly differentiated from counterarguments and the latter cannot occur until the former have been advanced. The presumption of linearity is a consequence of counterarguing being viewed characteristically not simply as advancing a contrary opinion but also as *intending* to disagree, in Austin's (1962) classic terms, as having the 'illocutionary' force of countering and not merely the 'perlocutionary'.

The trouble is that, while as noted counterarguments during dialogue necessarily involve reasoned opposition, the latter can in principle also occur within arguments. Take for instance Jenny's first contribution to Extract 1 and Jonathon's initiating contribution to Extract 2. From the argumentation perspective, these contributions are arguments, not counterarguments, but from the perspectives of Angela on the one hand and Anna and Chung on the other, they give reasons in opposition to those students' own beliefs. Thus, the contributions from Jenny and Jonathon (although arguments) are as validly coded as reasoned opposition as the subsequent (counterargument) contributions from Angela, Anna, and Chung. This implies that the key distinction when the focus is upon consequences for learning is not arguments versus counterarguments, but arguments that are subsequently countered plus counterarguments versus other arguments, and it is this distinction that should be recognized and encapsulated in coding schemes. Larrain et al.'s (2019) data, which seemingly endorse counterarguments but not arguments, are not inconsistent with this proposal, for given what has already been concluded about the typicality of Extracts 3 and 4, the vast majority of arguments in their dataset will probably not have been countered. Thus, the inclusion of the small number that were countered in the argument category rather than with counterarguments will not have distorted the results. Nevertheless, the subtle difference highlighted here between the concepts of reasoned opposition and counterargument is significant, not least for evaluating classroom interventions that attempt to move away from invitation-reason chains, and for further analyses of small-group interaction amongst students.

Researchers who adopt the dialogic perspective would probably not be unduly concerned by the fact that the concept of reasoned opposition cuts (to some extent, at least) across the argument/counterargument distinction. Their interest would most likely lie with the role of teachers within the oppositional encounters that the concept spotlights. After all, as indicated earlier, the focus of the dialogic perspective is not simply upon encouraging students to express and discuss their opinions, but also upon promoting collaboration with teachers towards mutually acceptable and co-constructed understandings. Thus, questions are raised like 'Can teachers productively oppose their students, or is this the prerogative of student groups alone?' and 'How can teachers build on oppositional dialogue when this occurs in groups that are restricted to students?' Piaget proposed a negative answer to the first question nearly a century ago (e.g., Piaget, 1932), arguing that teachers' authority is such that if they express views that differ from their students, those students will simply submit. This will result in short-term progress but because the students' own views have been lost in the process rather than co-ordinated with what their teachers were saying and thought about in conjunction with this, there will be no longer-term gain. Eventually, students will revert to what they started with.

The line taken in this paper is consistent with Piaget in many respects, because the emphasis has been upon reasoned opposition as potentially triggering reflection and reconsideration. Akin to Piaget, this implies that the views of both self and other must be brought together for change to occur. However, in contrast to Piaget, it does not necessarily follow that when the 'other' is a teacher, co-ordinated consideration cannot take place. In principle, there must surely be ways in which teachers can introduce their own analyses *and* encourage students to reflect upon their initial beliefs. There is certainly a risk of teacher over-dominance, as Piaget recognized, but perhaps this is not inevitable. If there is a route through which teachers can productively oppose, the implication (given what has been claimed above about teacher invitations) is that when teachers offer reasons, they may actually be providing more support for student learning than when they invite these.

As for the question of how teachers can build on oppositional dialogue in which they are not directly involved (as with Extracts 1 and 2), my most recent work indicates a potential role for what, in the afore-mentioned Howe (2021) paper, was termed 'beyond group sharing', namely occasions where students who have engaged in group work report on group activity to non-participating students. Data analyses presented in the 2021 paper indicate that beyond group sharing adds value to group work per se, simply because, of necessity, it forces students to reflect on and consolidate what they experience in groups. Matos' (2021) recent work indicates that similar processes can be activated when students record their experiences in writing. Two types of sharing were considered in my 2021 paper, specifically sequences where students moved from one small group to another, reporting on what had happened in the previous group and plenary sessions where, under teacher orchestration, small groups took turns to tell the whole class what their group had been doing. Both types were beneficial as regards student learning, but it is the latter, teacher-orchestrated plenary sessions that are particularly relevant here. This is because, as the (lightly edited) extract in Appendix 2 illustrates, they have the additional advantage of providing key information to teachers about reasoned opposition. Specifically, the interactions that the featured teacher holds with Saleem, Ayesha and Malala all include references to oppositional encounters that the teacher did not witness because they occurred during immediately preceding group work that was restricted to students.

As for building on information obtained during teacher-orchestrated post-group plenaries, there are preliminary signs in the data I have been examining that the plenary context may help here too. Specifically, teacher-student dialogue during plenaries seems to involve relatively high levels of elaboration and querying in contexts where student participation is, of course, necessarily high. In other words, plenaries appear to support the very features of teacher-student dialogue that, as mentioned earlier, Howe et al.

(2019) showed to be positively predictive of student progress, and that, as also mentioned, are mappable onto constructs that the dialogic perspective regards as critical. In detail, scrutiny of the eight classrooms in the Howe (2021) dataset that used post-group plenaries with high frequency indicates that during these plenaries, elaboration occurred with three or four times its average frequency across all classrooms in the dataset, and querying occurred with two or three times its average frequency. Consistent with this, all student turns in the extract that appears in Appendix 2 involve elaboration as defined earlier, and some involve querying. Particularly encouraging is the way in which high frequency elaboration and querying in the extract is integrated with reports of small-group opposition, suggesting that the putative value of reasoned opposition during group work was being consolidated rather than undermined during subsequent interaction with the teacher.

All in all then, the spotlighting of reasoned opposition in this paper carries a range of possible implications for both conceptual analysis and classroom practice. However, it is important to stress that all implications outlined in this section are no more than possibilities. All require further research, as of course does the proposal that underpins them that reasoned opposition in classrooms is much more likely to operate as a stimulus to student learning than reasoned dialogue in general. As emphasized already, the generalizability of the Howe et al. (2019) results that raise questions about reasoned dialogue needs to be checked, although the association in this section of reasoned dialogue with teacher-led IRE sequences gives grounds, beyond those presented earlier, for anticipating a degree of generality. After all, IRE sequences have been shown to pervade classroom interaction in numerous studies across a multitude of countries (see, e.g., Howe, 2010). Similarly, the relevance of reasoned opposition for student learning needs to be examined systematically.

Assuming the spotlighting of reasoned opposition sounds promising, it may be useful to reflect in conclusion upon the Howe et al. (2019) dataset that, in part at least, lies behind it, for that dataset is not aligned with either the dialogic or the argumentation perspective. Rather its starting point was features of dialogue that both perspectives (together with research not discernibly associated with either) had pinpointed as potentially helpful for student learning. Within the limits of manageability, the dataset was collected with a view to examining the relevance of all such features, and the scheme for coding the recorded dialogue was designed accordingly. Arguably, the field has now reached a level of maturity that further research of this synthetic nature can be contemplated. In other words, perhaps the future, as regards exploring dialogue-learning relations, lies not with work from within the dialogic *or* argumentation tradition but from adopting a yet-to-be-named perspective that cuts across these. Indeed, perhaps such work will identify further variables that, while not currently acknowledged within either tradition, are like reasoned opposition consistent with both traditions and also potentially associated with positive student outcomes.

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Appendix 1: Four Examples of Reasoned Dialogue

[All names are gender and ethnicity appropriate pseudonyms]

Extract 1

[Earlier, Jenny had indicated that, in her opinion, a ball dropped from a moving hot air balloon will initially fall vertically, but before hitting the ground, it will divert in the direction the balloon is moving. Angela had plumped for vertical fall throughout the descent]

Jenny Right next. Okay it's the heavy one, right? Yeah. The balloon moves, it goes that way, so I'd say it…Well it goes that way.
Angela But it's heavy, it's the heavy one.
Jenny Yeah, so it goes straight and then in the end it would drift, you know? Like I'd say the first goes straight, the second as well, and then it goes a bit like that.
Angela Yeah, probably.
Jenny Well, it's moving in that direction, so it goes like that doesn't it?
Angela Well, it also goes straight down because it's the heavy one.
Jenny I'd say there's a slight move in the end because you know it's moving. It should be left, shouldn't it?

Extract 2

[Each of the three participants has separately predicted the distance that a toy lorry will travel once it rolls down a slope and onto the floor. They are attempting to resolve the differences between these predictions]

Jonathon Well, the lorry's heavier, and it gives more. See, like it pulls down like. If it's light, it just moves down in its own time, but if it's got a lot of things, it'll make it go faster. Also, it's on the higher peg.
Anna But say it was like going down a water slide, and there was a great, big, heavy person getting down.
Chung That's different. Skin's different to rubber, and you slide down on water.
Anna I know, but cars are metal.
Chung It's rolling on paper, so the lorry'll hit it and it'll stop. But it's got weight to push it in the start, so I think it'll go faster.

Extract 3

[In collaboration with Cathy, Laura has set up parallel and series circuits. They are predicting the consequences of each circuit for the brightness of an attached bulb once it is switched on]

Laura That one would light up dimly that one, number 3, because there's only one cell.
Cathy So why would that make them light dimly then?
Laura Because there's not enough energy to get both of them to light up fully.
Cathy Because the energy's being..?
Laura Split in two. Why? Are they conductors?
Cathy No, the bulb would light up very brightly. Why?
Laura Because there's more energy to make it - cos one will make it light up whereas two will make it brighter.

Extract 4

[Like Extract 3, the topic is the consequences of type of circuit for bulb brightness, except that this time the focus is upon Christmas tree lights]

Jamie A parallel circuit.
Tara Right, you think a parallel, why do you think a parallel then?
Jamie Because on a serious one if you're-
Tara Not on a serious! On a serious circuit, I hope they're all serious today, Jamie. A series, yeah?
Jamie On a series circuit, like, if one goes they'd all go and you'd have to test them all out to see one, which ones went but on the erm, parallel circuit, if one went, the others would still keep going.
Tara Yeah, so if there is an incident with your bulb blowing, okay, it might stop the motor from working, however it's on a parallel, the electrons can bypass the blown lamp, the blown bulb can't it and go to the motor?
Sadie I think a serie because one-
Tara Serie? We've got a serious circuit and a serie circuit now! A series.
Sadie A series because we're only using one bulb so there's no, there's no use to use a parallel one because we're only using like one bulb, like more than one.

Appendix 2: Example of Teacher-Orchestrated Post-Group Plenary

[All names are gender and ethnicity appropriate pseudonyms]

[Immediately prior to the whole-class plenary extracted below, the class of 10- to 11-year-olds had been divided into small groups to discuss the statement 'It was right for the dogs to be shot' in the context of Shackleton's expedition to the Antarctic. The extract comprises the first half of what, in full, was roughly a six-minute plenary]

Teacher Right, it's time to summarize, get together the gist of your group, and then you need to report back. Right, so, nice and clearly, and take on a point of everybody in your group, and then we'll see how the conversation went. OK, can we start with Saleem?
Saleem In my group, Angela, Anna and Mysha all agreed with it was right to shoot the dogs because, like in the book, they said they needed more space on the ships and they needed more food supplies. Me and Mysha agreed that it was right, and we agreed and also disagreed with the statement, because they could have used the dogs for guard dogs or something like... transportation.
Teacher OK. … OK, right, thank you for your point. Who would like to add or build on what Saleem's just said? Ayesha.

Ayesha Building on what Saleem said, I disagree because how will the guard dogs protect the stuff, because, say, for example, some of the men, they were hunting and polar bears came, then the guard dogs wouldn't be enough to guard their belongings.

Teacher OK. But what was the overall view, opinion?

Ayesha Overall, we think that it was right for the dogs to be shot because, if they don't shoot the dogs, then the humans would starve, and the dogs would starve as well because there wouldn't be any food left. So, if they shot the dogs, the humans would have the food. Priority is that the humans survive.

Teacher Survive, OK. Thank you, Ayesha. Thank you. Who would like to build on from what Ayesha's just said? OK, Tahira.

Tahira We agree with Ayesha. The main priority was that it was right for them to shoot. If they hadn't shot the dogs, the dogs will die of starvation, and that's more painful than dying of a shot, because, if you die of a shot, it's only painful for like one second.

Teacher OK. OK. So Tahira's table have just said it was better that the dogs were shot rather than left there to die of starvation, because that would have also been a long, painful death. I don't know. Malala, do you want to add to that?

Malala So, on my table, everyone, except for me, agreed on killing the dogs, and Moien said that the dogs would be useful for meat and clothing. The clothing would be able to be used for warmth, and that's it. And the heat would give the crew members more energy and protein, and it would be healthy for them rather than starving.
