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Peer-to-peer-talk in whole-classroom discussions

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ABSTRACT

We observed stretches of peer-to-peer-talk during teacher-guided whole-classroom discussions aimed at sharing perspectives in Dutch Language and Literature lessons. This conversation-analytic study zooms in on how these stretches of peer-to-peer-talk emerge. Students are mainly found to respond to each other with *challenges* and *assertions*. A challenge is formulated as a wh-question - imperative, interrogative, declarative or phrasal - and is used for questioning the given response rather than obtaining information. An assertion is used to express a point of view and is formulated in two ways: as *personal opinion*, formulated in I-perspective, and as *statement*, formulated in second person singular or by the use of 'generic you'. Both a challenge and an assertion subsequently elicit a student contribution. A challenge mostly provokes a contribution in which a student expresses to stick to his/her point of view. An assertion mostly provokes a subsequent assertion in which agreement or disagreement is expressed. This study reveals that students work on one another's contributions from moment to moment in interaction. The insights from this study can support teachers in encouraging dialogue during whole-classroom discussions.

1. Introduction

In this study, we investigate episodes in which students interact with each other on various topics during whole-classroom discussions aimed at sharing perspectives in Dutch Language and Literature lessons. We focus on 'episodes of subsequent student contributions' (Willemsen et al., 2019), in this paper referred to as stretches of 'peer-to-peer-talk'. By applying conversation analysis (CA) (e.g., Sidnell & Stivers, 2013) as research method we explore the sequential organization of these stretches of peer-to-peer-talk. Gaining insight into how students interact with each other can provide guidance for teachers who want to encourage students to engage in 'dialogue' during classroom discussions. The term 'dialogue' refers to the type of talk in which 'every answer gives rise to another question. This leads to 'a chain of shared thinking', implying that 'participants are open to other's ideas and genuinely seek to understand these ideas even if they do not always agree' (Phillipson & Wegerif, 2017, p.1). This study offers detailed insights into how teachers can encourage dialogue in education. While focusing on moments of peer-to-peer-talk during whole-classroom discussions, it is shown that students work on one anothers' contributions from moment to moment in interaction during whole-classroom discussions. This extends existing knowledge on peer interaction in general, as well as on whole-classroom discussions in particular.

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1.1. Conducting dialogues in education

For decades, conducting dialogues in education has been considered a powerful pedagogical-didactic approach. Engaging in dialogue encourages and empowers students to become independent thinkers and active citizens (e.g., Dewey, 1966; Freire, 1970; Bakhtin, 1981) and allows students to interact with people with different worldviews. Engaging in dialogue creates opportunities to learn from one another's experience and perspective and it assists in achieving a new understanding and appreciation of the position of others (Buber, 1958). Discussing topics where students' opinions may differ and where friction may arise can help students experience what it is like to be subjects in a diverse society as well as become aware of other people's 'subjectness' (Lozano Parra et al., 2022). Using dialogue as a pedagogical and didactic approach can thus positively impact students' cognitive, social and personal development.

The realization that language and communication are key mediators of experience and thought and that students' development is influenced by it, has its origin in the work of Lev Vygotsky (1962, 1978). This insight is reflected in the educational approach *dialogic teaching*. Dialogic teaching is based on the active, extended involvement of students as well as teachers in spoken interaction. In dialogic teaching, teaching and learning becomes a collective endeavour in which knowledge and understanding are jointly constructed (e.g., Alexander, 2008a,b, 2010; Beck & McKeown, 2001; Burbulus, 1993; Mercer & Littleton, 2007; Murphy et al., 2009; Nystrand, 1997; Reznitskaya et al., 2009; Reznitskaya & Gregory, 2013; Wegerif et al., 1999; Wells, 1999).

Up until now, studies on dialogue within education appear to focus mostly on peer interaction in groups or pairs, while we have observed that students can also engage in dialogue in teacher led whole-classroom discussions. Considerably less research has been conducted on such interactions.

1.2. Interaction within whole-classroom discussions

Previous research has shown that teacher-initiated classroom talk can take the form of: teacher initiation (I), student response (R), and teacher follow-up (F) move (Mehan, 1979; Sinclair & Coulthard, 1975; Gardner & Mushin, 2017). Such teacher-fronted classroom interaction is essentially a pre-allocated system in which the teacher acts as "head" or "director" and where 'only teachers can direct speakership in any creative way' (McHoul, 1978, p. 188). This means that students have the responding role and the teacher the initiating role (Cazden, 2001; Lemke, 1990), which illustrates that if teachers aim to conduct whole-classroom discussions with room for peer-to-peer-talk, a change in participation structure is required.

Conducting whole-classroom discussions with a more dialogical participation framework requires different teacher actions than within classroom discussions with the above discussed three-part structure. Effective teacher actions revealed by previous research are, for example, open invitations (Willemsen et al., 2018); passing on turns during whole-classroom discussions (Willemsen et al., 2019); creating room for complex contributions; not assessing the students' contributions (Gosen et al., 2015) and encouraging the students to take the floor for extended periods of time (Soter et al., 2008; Willemsen et al., 2019).

Dialogical participation framework create space for students to take learner initiatives (e.g., Authors, 2022b; Batlle Rodriguez & Wilsterman, 2018; Waring, 2011). A learner initiative is defined by Waring (2011) as 'any learner attempt to make an uninvited contribution to the ongoing classroom talk. […] *Uninvited* may refer to (1) not being specifically selected as the next speaker or (2) not providing the expected response when selected' (p. 204). Enabling or encouraging learner initiatives during whole-classroom discussions contributes to a more equal form of interaction and provides a good starting point for the emergence of peer-to-peer-talk and for sharing perspectives.

Although to our knowledge research with a specific focus on peer-to-peer-talk in the context of a whole-classroom remains limited, one exception is the work of Davidson and Edwards-Groves (2018). Similar to the discussions investigated for this study, they examined interaction in whole-class talk of students aged 11–12 years and focused on student disagreements during the discussion of controversial topics and visual text. Davidson and Edwards-Groves describe methods students use for displaying disagreement and alignment with other students and for diffusing disputes that sometimes arose out of disagreements. This study illustrates that although teachers were still central to allocation of turn-taking and the monitoring of appropriate participation, students were on numerous occasions observed to interact without selection by the teacher (p.26).

The abovementioned studies on whole-classroom discussions with a more dialogical participation framework help to gain insight into when opportunities for peer-to-peer-talk within classroom discussions arise and into which teacher actions can elicit theses. They also reveal characteristics of expressing disagreement in a whole-classroom context but these studies do not show what else happens within the interaction *between students,* apart from expressing disagreement. In the following section, we will therefore, shed light on peer interaction in small groups.

1.3. Peer interaction in small groups

Much of what we know of the interactional organization of peer interaction comes from studies in which students interact in small groups, mostly in the absence of a teacher (e.g., Herder et al., 2018; Hiddink et al., 2019; McQuade et al., 2018; Pulles et al., 2020;

Sharma, 2012). These conversation-analytic studies provide insight into characteristics of profitable peer interactions around specific activities such as writing, solving problems and reading (Herder et al., 2018; Hiddink, 2019; Pulles et al., 2020) and the interactional management of providing disagreements within small groups (e.g., McQuade et al., 2018; Sharma, 2012).

Creating space for disagreement has, according to Sharma, positive consequences for "creating opportunities for the group members to display their stances, to agree, or disagree with each other's views and to get the discussion or writing task done" (p. 24). The sequential analysis of peer talk in the study mentioned above, reveals important insights in the moment-to-moment organization of peer talk. However, the analysis is focussed on disagreement in particular, and does not consider other types of utterances by students.

Mercer (1995, 1996, 2013) offers a well-known broader view of how peers interact. Building upon Barnes' research (1976), Mercer studied how learners in primary school classrooms interact with each other when working on solving problems, without teacher involvement. Mercer identified three types of talking and thinking: (1.) *Disputational Talk,* which is characterised by disagreement and individualised decision making. Features of this type of talk include short exchanges consisting of assertions and counter-assertions. In (2.) *Cumulative Talk* speakers build positively but uncritically on what the other speaker has said. Giving repetitions, confirmations and elaborations are characteristic of this type of talk. (3.) *Exploratory Talk* occurs when participants engage critically yet constructively with one another's ideas. Statements and suggestions are offered for joint consideration (Mercer, 1996, p. 369). Exploratory Talk is considered the most effective type of talk for thinking and learning and is also known as "Accountable Talk" (Resnick, 1999; Wolf et al., 2006). According to Mercer et al. (2019), Exploratory Talk is an important starting point for the dialogic teaching approach (p. 189). In order to create joint knowledge and understanding, it is necessary for learners to use exploratory talk when they work together in groups (Mercer et al., 2019, p. 189).

Mercer applied sociocultural discourse analysis in distinguishing the types of talk, which involved looking at the content, function and the ways shared understanding is developed, in social context of spoken language (Mercer, 2010, p. 9). By studying peer interaction from a conversation analytic perspective, insight can be gained into the organizational structure of peer interaction. In this way, the more specific interactional characteristics of moment-to-moment peer interaction can be shown. Insights into types of interactional actions during student peer interaction can support teachers in guiding and encouraging student dialogue more effectively. In other words, the present study complements existing works on peer interaction and whole-classroom discussions.

2. Data and method

The stretches of peer-to-peer-talk selected for this study were drawn from a project set up by the first author, who works as a teacher educator. A compulsory part within the graduation phase of the teacher education programme is to conduct didactic design research (Plomp & Nieveen, 2013). For this project, eleven preservice teachers were involved in the didactic design research. All preservice teachers worked at eight different secondary schools during 2018–2019. They taught Dutch Language and Literature to students aged 12 to 16. All teachers involved worked as independent teachers, with five out of eleven having teaching qualifications for either another subject or for primary education. Hence, we label them "teachers" from now on. However, it should be noted that these teachers were still developing their classroom interactional competence during the project (Walsh, 2013).

In addition to working on goals aimed at qualification and socialisation (e.g., Biesta, 2009, 2012, 2020), all teachers focused their didactic design research on making room for subjectification in their teaching Qualification refers to 'the making available of knowledge and skills' (Biesta, 2020, p. 92), socialisation to 'the (re)presentation of particular cultures, traditions and practices, either explicitly but also implicitly' (Biesta, 2022, p. 44) and subjectification is about emancipation and freedom of the student as an independent individual and the responsibility this entails (Biesta, 2015). According to Biesta (2020), education always functions in relation to these three domains (p. 92).

By corollary, the starting point for these teachers' research was to explore how to motivate students to express themselves as independent human beings by, for example, enabling the students to engage in dialogue in interaction. The teachers attended several guidance sessions organised by the researchers (authors 1, 2, 4) in which the aim was to better comprehend the domain of subjectification. This was done by reading and discussing literature and studying videos of their own lessons. The following design conditions were established by the researchers and participating teachers as a result of these sessions:

1. To use relatable teaching materials, such as videos, poems and newspaper articles.
2. To ask Information Seeking Questions (Mehan, 1979) on recognisable topics, so that teachers can show interest in students' thoughts and opinions (Nijstrand, 1997).
3. To inform students that the objective of the lesson is to encourage them to express themselves as independent human beings.
4. To use (teaching) methods in which students can engage in dialogue with each other.

The observed discussions were conducted in response to teacher-formulated propositions, opinion-seeking questions (Authors, 2022a) and/or experience questions (Authors, 2024, under review). Some teachers opted for a design in which students and teacher

were arranged in a circle or in the shape of a horseshoe. For this study, three discussions in such settings, involving three different teachers were observed. The total time allotted to this specific classroom activity is respectively 2.05 min, 9.80 min and 12.04 min (total duration of 23.89 min). The class discussion lasting 2.05 min was cut short by the teacher because of too much turmoil in the classroom. The three different groups consist of 16, 18 and 20 students. In all three discussions, teachers and students agreed in advance on the 'ground rules' at the start of the recorded lesson (Mercer, 2013). These agreements include: respecting one another and no interruptions. For all three discussions, students were allowed to self-select. Within these discussions, twenty lapses of peer-to-peer-talk were observed.

All selected exchanges start with a learner initiative (Waring, 2011) and are followed up by at least two contributions of peers. We have excluded initiatives in which the student bids for a turn in other ways, such as by raising hands (Sahlström, 2002), since the ground rules agreed that students were allowed to take turns on their own initiative. Once the teacher takes over the turn, the lapse stops. In some exchanges in our selection, there is turn overlap between student and teacher. If the student holds the turn, we included it as a stretch of peer-to-peer talk. The exchanges vary between three-turn exchanges and seventeen-turn exchanges. Within exchanges, a minimum of two (student-A-student B-student A) and a maximum of eight different students are involved.

The selected stretches of peer-to-peer-talk were transcribed in accordance with the Jeffersonian conventions (Jefferson, 1986, see Appendix A). Names of students and teachers have been anonymised. Transcripts were studied by applying the research method of conversation analysis (CA) (e.g., Sidnell & Stivers, 2013). Representing gaze direction, we used the transcribing approach of Mondada (2018). However, gaze direction could not be observed when participants were out of view of the camera.

CA is a qualitative research method and an interactional approach to exploring conversations. CA is used to study the details of the actual practices of participants by focusing on their observable attributions and displays (Gardner, 2019; Maynard, 2013; Ten Have, 2007). This enables us to reveal what occurs interactionally within the exchanges of peer -to-peer-talk from moment to moment. In the analyses, we will discuss both turn-taking, turn design and sequential structure of the stretches of peer-to-peer-talk.

3. Findings

In the following section we demonstrate that participants mostly use *assertions* when interacting within whole-classroom discussions, (Schegloff, 1989; Solem, 2016). In our research, we defined assertions as interactional actions conducted in two ways: 1. providing an *opinion* formulated from an I-perspective ("I say same punishment") and 2. presenting an *opinion* as a statement ("He wasn't paying attention himself"), formulated in second person singular, ("you can't say you accidentally killed someone") or formulated by the use of the 'generic you', comparable to the general third person singular pronoun 'one' in English. The assertions in our collection occur both as responses to the initial question asked by the teacher, (in the second position) and as a counter-response (Authors, 2022b) following a complete adjacency pair (teachers' question - students' response). The use of linking devices appears to be characteristic (Jefferson, 1986; Sacks, 1992) when students respond to one another's assertions. By using linking devices, students express agreement or disagreement in order to reveal how their assertions relate to previous assertions. This particular finding receives specific attention below, in Section 3.2.

The analyses show that in some exchanges students also provide *challenges* (Sacks et al., 1974) during moments of peer-to-peer-talk within whole-classroom discussions. This paper defined challenges as interactional actions formulated in the form of a wh-question (e.g. "How can you really know whether it is accidental or not?"), an imperative (e.g. "explain"); an interrogative (e.g. "but are you go watch those videos."; a declarative (e.g. "but maybe it has a malfunction?"); or a phrasal (e.g. "So what"). A challenge makes an appeal to the previous speaker to come up with (other) arguments or to look at the topic discussed from a broader perspective.

3.1. Providing challenges and assertions

In this section, we discuss what a challenge and an assertion look like, outline when they occur and demonstrate what they provoke in further interaction. The two utterances are discussed using a chronological order of appearance within excerpt 1. Since a challenge was observed first in excerpt 1, we start by discussing this type of action.

Excerpt 1 is taken from a classroom discussion about the concept of "flipping the classroom". This concerns a teaching method where teachers pre-record instructions and explanations, which students watch at home first, before they work on assignments or ask questions during class. Prior to the excerpt, the teacher starts the circle discussion by asking the students the opinion-seeking question: "What do you think of the idea?" Followed by a "general solicit" (Van Lier, 1988) in the form of a who-question: "Who wants to respond?" The exchange of peer-to-peer-talk starts with a learner initiative by Wim (line 20) and ends when the teacher takes the turn (line 45).

Excerpt 1: Challenge and Assertion

16	→Silke	nou (.) in- ik dacht gelijk ja maar niet iedereen
		well (.) in- I thought immediately yes but not everyone
17		gaat die filmpjes kijken en zo.
		is going to watch those videos and stuff.
18		**(2.0)**
19	Teacher	°ja°
		°yes°
20	→Wim	nou en.
		so what.
21	Lucas	nou en. ((lachen))
		so what. ((laughter))
22		**(1.0)**
23	→Lucas	#ik vin wel een goed idee (.) want dan kan je thuis filmpjes
		I think it's a good idea (.) because then you could watch videos
	Julia	**# g Lucas ----------→ ((untill line 28))**
24	Lucas	kijken en dan kan je (.) op school aan de slag en dan kan je
		at home and then you can (.) work at school and then you can
25		vragen stellen (.) en heb je ook nauwelijks huiswerk,
		ask questions (.) and you also hardly have any homework,
26		**(2.0)**
27	Lucas	en uh het is ook een andere manier van lesgeven (.) dus (.) ook
		and uh it's also a different way of teaching (.) so (.) also
28		wel leuk uit te proberen.#
		kind of fun to try out.
		**---------->#
29		**(2.0)**
30	→Bram	+#ja: vind ik ook wel ik bedoel dan hou je wel wat meer vrije tijd
		yeah: I agree I mean you'll have more free time then
	Bram	**+gazes forward ---------->#
	Julia	**#g Bram---------->#
31		over ennuh:hh enuh:h ja (.)+#
		and uh:hh and uh:h yes (.)
		**---------->#
		---------- >#
32	→Silke	maar ga je die filmpjes kijken.
		but are you go watch those videos.
33	Bram	+ja (.) ga ik wel doen.+
		yes (.) I am indeed going to.
	Bram	**+gazes forward ------->+**
34	Thijs	beetje eigen keus als je niet kijkt dan heb je ook geen leerstof
		kind of your own choice if you don't watch then you haven't had any
35		gehad dus dan snap je op de toets ook niet
		study material so then you don't understand it on the exam either
36	Silke	nee-
		no-
37	Thijs	dus als je't wil snappen moet je kijken, (.) anders niet.
		so if you want to understand it you have to watch, (.) otherwise don't
38	Julia	#+ja 't lijkt mij ook wel een goed idee maar ik denk dat heel veel
		yes, it seems like a good idea to me as well but I think a lot
	Julia	**#g Thijs---------->#
39	Julia	gewoon die verantwoordelijkheid# # niet # #kunnen nemen omdat ze
		**------------------------------>#
	Julia	**#gbram-># #g Thijs----->((until line 41))**
	Bram	**+ g Julia----------> ((until line 41))**
		of people just can't take that responsibility because they
40		gewoon niet die filmpjes gaan kijken of (.) niks gaan doen in de
		just won't watch those films or (.) won't do anything during
41		les (.)+ +dan schiet je er ook niet echt veel mee op.#+
		class (.) then it doesn't really help you much either.
		**---------->#
	Bram	**----->+ +g Thijs---------->#
42		**(11.0)**
43	Teacher	dus ik hoor mensen die het een goed idee vinden en mensen die
		so I hear people who think it's a good idea and people who
44		het een minder goed idee vinden maar ik heb nog niet iedereen
		think it's not such a good idea but I haven't heard everyone
45		gehoord.
		yet.

The teacher starts the whole-classroom discussion by asking a wh-question (Englert, 2010), fitting into the category of 'open invitations projecting specific types of responses' (Willemsen et al., 2018). The question is the first pair part and Silke (line 16–17) takes a learner initiative. Silke is not specifically selected as the next speaker (Waring, 2011), and produces the response to the question, providing the requested second pair part. This response elicits a minimal follow-up from the teacher ("yes") (line 19) in the third position. However, Silke's response is also followed by a counter-response (Authors, 2022b) ("so what") from Wim (line 20), which serves as a challenge. Characteristic of a challenge is that it follows an adjacency pair. In this instance, the challenge is formulated as a phrasal. A challenge seems designed to question the given response rather than to obtain information. This is shown in excerpt 1, by Silke not responding to the challenge. Instead Lucas (line 21) takes the turn in which he repeats the challenge, and after a short pause (line 22), answers the teacher's starting question by expressing his opinion (lines 23–25 - 27–28). In our data, a challenge provokes a subsequent student contribution in all instances.

When a challenge is formulated as a declarative-, wh-question or an interrogative a second pair part is usually provided. An example of this is shown in line 32 ("but are you going to watch those videos."). This challenge is formulated as a declarative addressed to Bram ("you") (line 32) and is done in response to his opinion (line 30–31). Silke does not provide her own opinion but rather questions whether Bram himself would watch the recorded videos. In doing so, she addresses that *thinking* something is not necessarily the same as *doing* something, by which she introduces a new perspective. The challenge launches a first pair part. Bram provides the second pair part, "yes I am indeed going to" (line 32), and uses it to confirm his point of view. Sticking to a previously announced viewpoint after a challenge in the form of single, affirmative responses, appears to be characteristic of a response to a challenge in our data.

An example of an assertion, in the form of an opinion formulated from an I-perspective ("I think it's a good idea"), can be found in lines (23–25) (27–28). This utterance provides a response to the starting question and appears in the second position. Through the words "I think" (line 23), Lucas presents the utterance explicitly as his personal opinion and reveals his perspective on flipping the classroom. Lucas' response elicits a subsequent opinion from Bram (lines 30) ("yeah: I agree"). This is expanded by supporting his opinion with an argument ("I mean you'll have more free time then and uh yes") (lines 30–31). This shows that when students make assertions, they also appear to do argumentative work by supporting the assertions with arguments. This is seen both with assertions phrased in the I perspective and with assertions phrased as a statement.

When students make an assertion in the form of a statement, they present their point of view more as fact than as personal opinion. An example of an assertion in the form of a statement is shown in lines 34–35 ("kind of your own choice if you don't watch then you haven't had any study material so then you don't understand it on the exam either"). This statement is phrased in the present tense, second person singular, by using an "if…then" formulation. These three features appear to be characteristic of this type of utterance. The statement is a response to the challenge (line 32) given by Silke and provokes a response from Silke ("no") (line 36), after which Thijs retakes the turn and concludes his position with the following statement: "so if you want to understand it you have to watch (.) otherwise don't" (line 37). This example shows that Thijs makes his statement in continuation of-, and in agreement with, Bram's response, extending the defence of the previously announced perspective, reflecting collaborative agreement.

This excerpt shows that an assertion elicits a following student contribution, mostly in the form of the following assertion. This illustrates non-minimal post-expansion (Schegloff, 2007) enabling students to start a discussion with each other, in which they both have the opportunity to express their perspectives and to meet those of others. The observation that an assertion provokes making a subsequent assertion is in line with the work of Pomerantz (1984), who demonstrated that giving an assessment provokes a following assessment. Making an assessment can be done in a similary way to giving an opinion; an assessment can be understood as a 'positive [ly] or negative[ly] valence stance toward some person or object talked about' (Sidnell, 2012, p.304).

Our data collection reveals that in moments of peer-to-peer-talk, students are about twelve times more likely to give an assertion than a challenge. This means that the stretches of peer-to-peer-talk studied consist mainly of exchanging statements and opinions between peers and, to a lesser extent, questioning one another's statements with a challenge. The peer-to-peer talk that we studied also reveals different perspectives that can be divided between supporters and opponents of a specific topic, and in which speakers show their position by expressing agreement or disagreement. The interaction that emerges shows characteristics of Mercer's three types of talk (1996), which is discussed in more detail in the next section.

3.2. Expressing agreement and disagreement

In the exchanges of peer-to-peer-talk studied, participants appear to respond directly to one another's assertions. This is usually done using linking devices (Jefferson, 1986; Sacks, 1992) or agreement particles (Pomerantz, 1984). Using these, students show *disagreement* or *agreement*. In excerpt 2 and 3, we discuss how students express agreement and disagreement and what this implies for further interaction. In excerpt 2, we look at expressing agreement in more detail.

In excerpt 2, during a whole-classroom discussion, the teacher asks whether drivers should be given the same punishment in incidents where victims have been accidentally hit compared to incidents where victims were intentionally hit (line 44–51). The exchanges of peer-to-peer-talk starts in line 52, agreement is shown in line 60.

Excerpt 2: Displaying Agreement

44	Teacher	hee jij gebruikt het voorbeeld van iemand die eh he die
		right you use the example of someone who eh he who
45		iemand naja wel heel ernstig verwond, *((wijst naar leerling 2))*
		injures, someone eh well very seriously ((points to student 2))
46		(h)Ik begin me wel een beetje zorgen te maken eigenlijk maar:
		(h)I'm starting to get a bit worried actually but:
47		ja he soms zijn de gevolgen he in dit geval loopt die man
		yes he sometimes the consequences are he in this case
48		eh die loopt vijf miljoen euro mis maar, (.) als het gaat om
		loses five million euros but, (.) when it comes to
49		iets waar je iemand dus eh pijn doet eh dus stel dat iemand
		something where you hurt someone eh so imagine that someone
50		in zijn auto per ongeluk (.) iemand aanrijdt (.)
		accidentally (.) hits someone with his car (.)
51		verdient ie dan ((kijkt rond)) een lichtere straf dan iemand
		does he deserve ((looks around)) a lighter punishment than someone
		[die] dat bewust of expres doet.
		[who] does so intentionally or on purpose.
52	→Anke	+[nee-]+
		[no-]
	Anke	**+g T-->+**
53	Joyce	$°nee.°$
		no.
	Joyce	**$g T-->$**
54	Jelmer	%nee vind ik niet.%
		no I don't think so.
	Jelmer	**%g T------------>%**
55	Coen	&nee.&
		no.
	Coen	**&gT->&**
56	Jelmer	%want hij neemt dan waarschijnlijk wel
		because he'll probably take away
	Jelmer	**%T ------------------------------->**
57		iemand zijn le leven af.%
		someone's li life.
		----------------------->%
58	Kees	hij lette zelf niet op.
		he wasn't paying attention himself.
59	→Jelmer	%ja inderdaad maar heeft hij dat misschien wel per ongeluk
		yes indeed but he might have accidentally
	Jelmer	**%g T ------------------------------------->**
60		gedaan maar hij lette niet op.%
		done it but he wasn't paying attention.
		---------------------------->%

This exchange is triggered by a general solicit (Van Lier, 1988) in the form of a prefaced polar question (Englert, 2010) (lines 44–51) which initiates the sequence. Several students provide responses (lines 52, 53, 54, 55) by taking learner initiatives, they are not being specifically selected as the next speaker (Waring, 2011), producing the requested second pair part. In doing so, students gaze at the teacher, suggesting that students assume the teacher is in control of the turn distribution. Jelmer, however, retakes the turn (line 56). While doing so, Jelmer looks at the teacher, which may indicate that he is aware that he is breaking through the IRF- structure, since he is producing an elaboration in the place where the teacher could also come up with a follow-up. Jelmer's elaboration (lines 56–57) elicits an assertion in the form of a statement from Kees (line 58). Jelmer reclaims the turn and starts expressing agreement ("yes indeed") (line 59). The agreement acts as a linking device (Jefferson, 1986; Sacks, 1992), which links back to the previous turn, implying that his utterance is prompted by the previous utterance and no longer by the starting question asked at the beginning of the sequence. Jelmer's utterance contains features of cumulative talk in the form of confirmations: "yes indeed" (line 59). These utterances create topical continuity and demonstrate that the participant is building on the previous turn. Jelmer then also provides an elaboration ("but he might have accidentally done it") (lines 59–60). With the word "but" he announces a new perspective and builds on the previous speaker's reasoning, which is a feature of exploratory talk (Mercer, 1996). Jelmer closes his turn ("but he wasn't paying attention") (line 60) a repeat of Kees' assertion provided earlier (line 58) showing agreement with Kees' point of view and revealing that he sticks to his previously announced position. This example shows that stretches of peer-to-peer talk, where agreement is expressed, can contain both features of cumulative and explorative talk (Mercer, 1996).

Using the following example, we zoom in on expressing disagreement within moments of peer-to-peer-talk. Excerpt 3 is a continuation of the same classroom discussion from excerpt 2.

Excerpt 3: Expressing Disagreement

137	Mathijs	αik denk dat ze dezelfde straf krijgen.= α
		I think they will get the same punishment.=
	Mathijs	**α g T----------->α**
138	Teacher	=dezelfde straf denk jij waarom.=
		=same punishment you think why.=
139	Mathijs	α=dat denk ik, (.) nou ze hebben allebei ↑even veelα αfout gedaan.α
		=I think so, (.) well they have both done ↑equally αwrong.
	Mathijs	**α gazes in front of him----------->α**
	Mathijs	**α g T------>α**
140		**(1.0)**
141	Teacher	[ja maar één,]
		[yes but one,]
142→	Ingrid	βχ [NEE] want de één is poging tot moord,
		[NO] because one is attempted murder,
	Ingrid	**β g Mathijs---------- ((until line145))->**
	Boukje	**χ g Mathijs ----------((until line145))->**
143	Ingrid	[na ja] dan heb je eigenlijk iemand vermoord. β χ
		[well yes] then you actually murdered someone.
144	Boukje	[ja::]
		[yes::]
		---------->β χ
145	Boukje	χwant poging tot moordχ χis [moord].χ
		because attempted murder is [murder].
	Boukje	**χgazes in front of her**
		---------->χ
	Boukje	**χ Ingrid--->χ**
146	Ingrid	β[ja ja.((lacht)).]β
		[yes yes.((laughs)).]
	Ingrid	**β g Boukje---------->β**
147	Jelmer	%[ja maar (.) ook al doe je,]%
		[yes but (.) even you do,]
	Jelmer	**%g T ---------->%**
148→	Mathijs	maar die ander ander heeft een
		but that other other person has
149		onbewuste poging tot [moord]. ((lacht))
		an unwilling attempt to [murder].((laughs))
150	Ingrid	β[je hebt] iemand vermoord,β
		[one has] murdered someone,
	Ingrid	**g Mathijs---------->β**
151	Jelmer	%%((lacht))ja:% inderdaad ((laatste woorden onverstaanbaar)) %
		((laughs)) yes: indeed ((last words inaudible))
	Jelmer	**% g Mathijs---------->%**
	Jelmer	**%p Mathijs-->%**
152	class	((lachen)) (2.0)
		((laughing)) (2.0)
153	Jelmer	%ja maar (.) ze hebben toch beide iemand vermoord.%
		yes but (.) they both killed someone though.
	Jelmer	**%g Mathijs---------->%**

The excerpt starts with a response by Mathijs in the form of an assertion formulated from an I perspective on the teacher's starting question (line 137). The teacher produces a generic follow-up (Authors, 2022a) (line 138) asking for clarification. Mathijs starts by providing an affirmation ("I think so") (line 139) emphasizing that these are his personal thoughts and produces a clarification ("well they have both done equally wrong"). Hereafter the teacher produces a specific follow-up (Authors, 2022a) ("yes but one") (line 141). The follow-up is produced in overlap with an assertion from Ingrid, who retains the turn, formulated as a statement ("NO because one is attempted murder") (line 142). Ingrid starts her assertion with ("NO") pronounced with increased volume, making it clear that she disagrees with Mathijs' opinion. This assertion is aimed directly at Mathijs, indicated by her gaze at Mathijs instead of the teacher.

Ingrid formulates the assertion as a statement, adding strength to her utterance.

Ingrid's assertion provokes an agreement from Boukje (line 144). After this, Boukje builds on Ingrid's assertion ("because") with a statement ("attempted murder is murder") (line 145) making it clear that she supports Ingrid's position. This elicits agreement from Ingrid ("yes yes") (line 146). This agreement is produced in overlap with a counter-response by Jelmer ("yes") (line 147), introducing an oppositional stance with an agreement particle (McQuade et al., 2018). Jelmer looks at the teacher, showing that he is aware of the teacher's presence. There is turn overlap with Mathijs, who retains the turn and shows his disagreement with the assertion ("but that other person has an unwilling attempt to murder") (line 148). This assertion provokes a subsequent assertion from Ingrid, in which she states clearly that she sticks to her point of view ("one has murdered someone") (line 150). This assertion elicits agreement from Jelmer (line 151) in response to Mathijs' stance, illustrated by gaze direction and pointing at Mathijs (line 151), which shows that he is currently engaged in direct interaction with his peer. Multiple students laugh (line 152), after which Jelmer retakes the turn and repeats his point of view with the assertion ("yes but they both killed someone though") (line 153). This utterance is directed at Mathijs, gazing in his direction, making it clear that they have the same point of view. This utterance builds on Jelmer's utterances, showing collaborative agreement regarding the position taken, just as between Ingrid and Boukje.

This excerpt shows that, although students are aware of the teacher's presence (line 147), they engage in direct interaction with each other during moments of peer-to-peer-talk. This is done by expressing (dis)agreement, turn overlap, gazing and pointing at each other. This excerpt also reveals that when students' express disagreement during moments of peer-to-peer-talk, there appears to emerge a kind of yes-no situation, which is characteristic of disputational talk (Mercer, 1996). It shows that students do not participate in exploring another perspective and often do not change their viewpoints within the exchanges studied, at least not observably. In addition to disputational features, the interaction also contains features of exploratory talk: students who share the same point of view express agreement and build on each other's reasoning with new arguments. This illustrates that peer-to-peer-talk in which perspectives are expressed, shows elements of multiple types of talk from moment-to-moment in interaction.

4. Conclusion and discussion

This study demonstrate what peer-to-peer-talk looks like, during whole-classroom discussions aimed at offering opportunities for dialogue in secondary education. Our analyses demonstrate that peer-to-peer-talk consists mainly of *challenges* and *assertions*. A challenge is formulated as a wh-question - imperative, interrogative, phrasal- or declarative - and follows an adjacency pair, in the third position. A challenge is used for making a counterpoint rather than asking for information. Responses to challenges are mainly used to confirm previously given points of view. Assertions are made to make the speaker's view explicit and is done in two ways: by offering opinions using the I-perspective and by offering statements formulated in the second person singular or by a generic you. Assertions occur as both response and counter-response (Authors, 2022b). Our data collection shows that in moments of peer-to-peer-talk, students are more likely to use assertions than challenges (85 assertions towards seven challenges). This implies that students use stretches of peer-to-peer-talk mainly to express their perspectives on a specific topic explicitly and less to question one another's statement. In doing so, they show that their interactional actions are consistent with the starting question of the discussion. This outcome suggests that if teachers want to enable students to engage in actual dialogues, they should not only instruct students to share perspectives but also encourage them to ask questions and attempt to understand each other's perspectives. Phillipson and Wegerif (2017) argue that being better at dialogue means learning how to ask better questions; how to listen better; and how to be open to new possibilities and new perspectives (p.2).

Both challenges and assertions elicit subsequent learner initiatives and provide a dialogic participation framework (Authors, 2022b; Batlle Rodriguez & Murillo Wilstermann, 2018; Waring, 2011). This finding is in line with previous research on learner initiatives. The results also demonstrate that the use of linking devices (Jefferson, 1986; Sacks, 1992) and agreement particles (Pomerantz, 1984) are indicators for the types of talk elicited during the moments of peer-to-peer-talk. When agreement is expressed, the interaction shows both characteristics of cumulative talk (repetitions, confirmations) and exploratory talk (building on each other's reasoning) (Mercer, 1996). When students express disagreement, interactions show characteristics of disputational talk (Mercer, 1996); a kind of yes-no situation is revealed between proponents and opponents. At the same time, it is revealed that students within such a yes-no situation present arguments to explain their position to opponents and express agreement to supporters. Students who share a point of view, build on one another's reasoning and achieve collective agreement, characteristics that fit exploratory talk.

Although the stretches of peer-to-peer-talk contain characteristics of exploratory talk, the results also illustrate that students do not seem receptive to each other's arguments because they stick to a proclaimed position. Within 'real dialogue', it is of importance that students learn to find common ground, despite differences in views (Newman, 2016; Phillipson & Wegerif, 2017). This implies that if teachers want to make room for 'real dialogues' within classroom discussions, they should encourage students to seek points of agreement more often than affirming those on which they disagree. It seems that this requires explicit instruction, since our study shows that when a teacher asks for opinions, students offer opinions and do not examine other people's views on their own initiative.

It is difficult to know how the design conditions, group size (max 20 students), the set-up of the discussion - in a circle or shape of a horse-shoe - and the approach of working with 'ground-rules' (Mercer, 2013) influenced the interaction and participation. However, the results suggest that the set-up and establishment of ground rules may have helped to enable direct interaction between students. This was demonstrated by learner initiatives and by gazing at peers during the stretches of peer-to-peer-talk,

This research complements previous CA studies of peer interaction within small groups (e.g., Davidson & Edwards-Groves, 2018; Herder et al., 2018; Hiddink, 2019; McQuade et al., 2018; Pulles et al., 2020; Sharma, 2012). It provides insight into student interaction in whole-classroom discussions. It also adds to Mercer et al's sociocultural discourse analytical work. Specifically, having applied a conversational analysis approach, the more moment-to-moment interactions within stretches of students' peer-to-peer talk is

revealed. The knowledge gained from this study is of interest to teachers who would like to encourage peer-to-peer-talk in order to establish dialogue during classroom discussions. This study illustrates that encouraging peer-to-peer talk during whole-classroom discussions can be of interest to teachers, as it enables interactions in which students have the opportunity to apply different types of talk, encounter different perspectives and can learn to engage in 'real dialogue'.

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Johanna van Balen: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Myrte N. Gosen:** Conceptualization, Formal analysis, Methodology, Supervision, Writing – review & editing. **Siebrich de Vries:** Conceptualization, Formal analysis, Methodology, Supervision, Writing – review & editing. **Tom Koole:** Conceptualization, Formal analysis, Methodology, Supervision, Writing – review & editing.

Conflicts of Interest

No competing interests to declare.

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Appendix A

Transcription conventions (based on Jefferson, 1986)

[word	overlapping talk
[word	
word=	'latching': no gap between two turns
=word	
(1.0)	pause of one second
(.)	micro pause, shorter than 0.2 s
?	sharp rising phrase intonation, not necessarily a question
,	slight rising phrase intonation, suggesting continuation
.	falling phrase intonation
-	flat intonation
↑ ↓	marked rising or falling shift in syllable intonation
WORD	louder than surrounding talk
°word°	softer than surrounding talk
Word	stressed syllable
wo:rd	lengthening of the preceding sound
>phrase<	faster than surrounding talk
<phrase>	slower than surrounding talk
Hh	audible aspiration
.hh	audible inhalation
((points))	verbal description of (non-verbal) actions
Embodied (Mondada, 2018)	
**	Gestures and descriptions of embodied actions are delimited
++	between two identical symbols (one symbol per participant).
*→	The action described continues across subsequent lines
→*	until the same symbol is reached.
G	Gazes in the direction of (name)
P	Points in the direction of (name)
T	Teacher

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