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Teacher Formulations in Classroom Interactions

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ABSTRACT
This article examines teacher formulations in teacher-fronted whole class interactions. Using conversation analysis (CA), we have analysed topic talk between teachers and students (12–16 years old) in Norwegian classrooms. We have identified three sub-groups of teacher formulations—transforming, challenging, and summarising formulations. We show how teacher formulations in topic talk are an important part of teaching and that the formulations serve different and specialised functions in classroom interactions. Our main finding is that teachers use the formulations to establish a shared pedagogic focus, the learnable. This study contributes by providing knowledge on formulations as a pedagogical device and by accumulating knowledge about the practice of formulation in general.

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Teacher formulations; learnables; classroom interaction; conversation analysis

Introduction

In classroom interactions, teachers often repeat and paraphrase students’ contributions with the words “so what you’re saying is …”. Within conversation analysis (CA) research, these utterances are identified as formulations. In this article, we examine conversational formulations in teacher-led classroom interactions using a CA approach. More specifically, we examine how eight teachers in five different classrooms utilise formulations to achieve curricular and institutional goals. Our aim is to describe conversational formulations as a teaching practice and to identify the purposes that formulations accomplish in teacher-led classroom interactions. We present three sub-groups of formulations—transforming, challenging, and summarising—and discuss the different actions they accomplish.

Formulations are “types of repeat utterances that display a characterization of prior talk for confirmation or disconfirmation” (Barnes, 2007, p. 275). In the CA literature, conversational formulations are described as participants’ activity of displaying understanding and establishing shared knowledge and comprehension (Garfinkel & Sacks, 1970; Heritage & Watson, 1980, p. 245). Formulations are utterances that are “summarising, glossing or developing the gist of an informant’s earlier statements” (Heritage, 1985, p. 100) in whole or in some foregoing section of the conversation (Heritage & Watson, 1979, p. 130) and are typically “undertaken by questioners” in “institutionalized, audience-directed interaction” (Drew, 2003, p. 298; Heritage, 1985, p. 100). Heritage and Watson (1979) identify two types of conversational formulation: the formulation of gists and upshots. Gist formulations are formulations of “the sense achieved thus far either in a conversation in toto or in some foregoing section of the conversation” (p. 130). They manifest three central properties in that they preserve, delete, or transform relevant features of a prior utterance or utterances (p. 129). Upshot formulations are presuppositions of “some unexplicated version of
gist” (p. 134). In addition to functioning as a display of understanding, formulations function to close down topics and have significance for the overall structural organisation of talk (Barnes, 2007, pp. 284–285). They may also serve to close down conversations (Heritage & Watson, 1979, pp. 154–156).

Formulating talk in a broad sense is a phenomenon in conversation that includes a wide range of activities. It was first described by Garfinkel and Sacks (1970, p. 350):

A member may treat some part of the conversation as an occasion to describe that conversation, to explain it, or characterize it, or furnish the gist of it, or take note of its accordance with rules, or remark on its departure from rules. That is to say, a member may use some part of the conversation as an occasion to formulate the conversation.

In classrooms, teacher and students jointly orient to demonstrate and formulate understanding of the lesson’s topic(s) (Heyman, 1986, p. 37). Formulations may be used to gloss the “work-so-far, the work-at-hand, or the work-to-come”. Following Garfinkel and Sacks’ broad approach to formulations, Heyman (1986) identifies a wide range of formulations, where “gist” or “upshot” formulations tied to the prior speaker’s turn are one of five types of formulations. In this study, we examine “gist” and “upshot” formulations, and we use the concept of formulation in a narrower sense than Garfinkel and Sacks (1970) and Heyman (1986) do, in line with Heritage (1985).

Gist and upshot formulations are typically third turns in question–answer–formulation sequences (cf. Hutchby, 2005, see also Heritage, 1985). In an educational context, question–answer sequences initiated by teacher questions and followed by student responses have been identified as IRE (initiation–response–evaluation) sequences, indicating that the third turn in the sequence consists of teacher evaluations (see Mehan, 1979). The teacher formulations studied in this article occupy the third slot in an (extended) IRE-sequence. As Lee (2007, p. 181) points out, previous research on classroom interaction has recognised the complexity of the evaluation (or third turn), but has not taken into account the contingent nature of it. Lee (2007) shows how the third turn is “an extraordinary place that brings into view a vast array of interpretive works and contingent methods of actions by the teacher as she acts on the students’ second turn” (Lee, 2007, p. 202). This article further expands the research on teachers’ third turns in whole class interactions. The analytic focus is on one type of “evaluation”, formulations, and the variety of functions these teacher formulations accomplish.

Formulations in classroom interaction have received attention from educational researchers. Within the frame of the socio-cultural approach to teaching and learning, scholars have examined classroom dialogue and teachers’ methods for supporting students’ contributions to classroom dialogue (Edwards, 1997; Furtak & Shavelson, 2009; Lemke, 1990; Mercer, 2000, 2003; Mercer & Littleton, 2007; Scott, 1998). Mercer (2000, 2003) identifies practices teachers use for “building the future from the past” (p. 52) that he calls “reformulations”, “paraphrases” (2000, p. 52), and “recap summaries” (Mercer, 2003). According to Mercer (2003), these practices are a “crucial part of a good teacher’s success in supporting and guiding the development of children’s educational progress”, because these practices help children to support their use of language and to see “what they have done” (p. 55). Furtak and Shavelson (2009), on their side, use the terms “reconstructive paraphrase” and “recap” when teachers reformulate students’ contributions to more acceptable versions or in preferred terminology. This also includes when the teacher has changed the meaning of what the student has said (p. 184). Based on Scott (1998) and Lemke (1990), Furtak and Shavelson (2009) emphasise this practice as one of a range of different “instructional strategies” that are categorised as “authoritative teaching moves”, as opposed to “dialogic teacher moves”. In their quantitative study, they categorise teachers’ instructional strategies as either authoritative or dialogic, and conclude that teachers of higher-gained students shift between authoritative and dialogic exchanges to a greater extent than teachers of lower-gained students (Furtak & Shavelson, 2009, p. 200).

The practices Mercer (2000, 2003) and Furtak and Shavelson (2009) describe with slightly different terms may be associated with the practice that in CA terms is labelled “formulations”. However,
they neither conceptualise the practice as “formulation”, nor attempt to understand the practice by using the knowledge accumulated within CA. Our aim is to present new knowledge of the formulation practice by analysing the different functions this practice accomplishes in classroom interaction. Using CA and analysing a collection of formulations in their sequential context, our analysis brings forward new nuances and functions that are more specific and detailed than previous studies have identified. The CA approach follows the scientific method for descriptively analysing and investigating phenomena in talk, without any predefined categorisation of the phenomenon as “good practice”, “authoritative”, or “dialogic”. Our contribution is a finer-grained and more specific outline of the different functions that formulations serve in classroom interaction.

Over the last decade, CA has attracted the interest of a growing number of researchers in educational research. A commonly held position is that “if learning is understood as situated or constituted in interaction, research on interaction will provide for better understandings of learning” (Sahlström, 2009, p. 103). The methodology of CA gives opportunities to work empirically with learning and socialisation and provides a framework for analysing interaction that adds precision to educational research (Emanuelsson & Sahlstöm, 2008, p. 206). Within CA, the practice of formulation has been thoroughly examined in various institutional contexts. However, to our knowledge, teacher formulations in classroom interaction have not yet been fully described and there is a need for additional examination. Regarding the need for a systematic CA analysis of teacher formulations, we ask:

- What are the characteristic features of third-turn teacher formulations in classroom interactions?
- What kind of actions do third-turn teacher formulations accomplish?
- How is this practice used in teaching?

**Formulations in Institutional Contexts**

According to Heritage and Watson (1979, p. 128), there are multiple uses of formulations. Formulation as a practice is common for many types of institutional interactions, but the actual format and function of the formulations vary between contexts (cf. Antaki, 2008, pp. 33–34; Drew, 2003, p. 298). Therefore, when analysing formulations one needs to pay specific attention to the activity setting (Drew, 2003) or the institutional contexts of the formulations. Within CA, the practice of formulation has been thoroughly examined in various types of institutional interactions, such as news interviews (Heritage, 1985), meeting talk (Barnes, 2007), therapeutic contexts (Antaki, 2008; Antaki, Barnes, & Leudar, 2007; Hutchby, 2005; Vehviläinen, 2003), encounters in public offices (Svennevig, 2003), and doctor–patient communication (e.g., Garafanga & Britten, 2004; Landmark, Svennevig, & Gulbrandsen, 2016).

Heritage (1985) analyses the role formulating utterances play in news interviews, which he characterises as “a form of response through which prior talk can be treated as news and maintained as a topical focus while, at the same time, an institutionally appropriate footing is maintained in relation to the news audience” (Heritage, 1985, p. 104). His analysis presents different types of formulations in news interviews, such as the prompt, the recycle, and the probe (Heritage, 1985, pp. 104–112). While the prompt and the recycle are viewed as cooperative in the sense that they would expectedly be confirmed by the interviewee, the probe entails some presuppositions about the interviewees’ actions, intentions, or attitudes that are likely to be rejected. The probe is therefore viewed as uncooperative.

Barnes (2007) analyses meeting talk at a medical school. Her analysis includes gist and upshot formulations, and the primary focus is formulations as candidate pre-closings. Barnes (2007) argues that the candidate pre-closings were employed to close the business at hand and to facilitate topic transition while helping to establish, record, and preserve shared understanding as a basis for common agreement.
In his analysis of child counselling sessions, Hutchby (2005) analyses how counsellors’ formulations are involved in achieving the complex institutional and interactional conduct of “active listening” in these settings. Hutchby shows how the counsellor’s formulations are a part of extended question–answer sequences where they are especially involved in focusing on counselling-relevant issues, even ones that the children have not explicitly stated. The formulations are therefore rarely neutral but act as “candidate re-presentations”, transforming the children’s talk from private experiences to more general therapeutic objects (Hutchby, 2005, pp. 316–317).

CA-studies of formulations in pedagogical contexts are scarce (but see Baraldi, 2014; Kapellidi, 2015; van Kruiningen, 2013; Waring, 2002). Van Kruiningen (2013) analyses the use of formulations in an educational meeting between two university lecturers and two educational consultants. She shows how successive speakers employ formulations to redefine, supplement, or adjust the content of the previous speakers and thus orient toward a “reflective and collaborative process” (van Kruiningen, 2013, p. 118) in which they managed shared understanding and solved teaching problems. Waring (2002) analyses reformulations in an academic seminar between Masters students, PhD students, and professors. She identifies “reformulations” as a sub-group of formulations characterised as forms of talk, which may briefly be described as “you are saying” (Waring, 2002, p. 457). Waring (2002) shows how the reformulations in addition to carrying out the first-order action of proffering candidate understandings or understanding checks also allow a third party to pinpoint the source of a disagreement and thus may contribute to solving disagreements between two other parties in an interaction while staying neutral.

Kapellidi (2015) has examined how formulations are accomplished in whole class interactions. She identified two groups of (re)formulations: reformulations as matter belonging to the teachers’ epistemic domain and reformulations as matters to which the teacher has no access. The first group do not invite confirmation, do not constitute adjacency pairs, and function in “extending the students’ linguistic resources in accordance with the school curriculum” (Kapellidi, 2015, p. 589). The second group invite confirmation and ensure intersubjectivity, displaying understanding of students’ talk. Though Kapellidi’s analyses are compatible with the analyses presented in the present study, this study emphasises the functions of teacher formulations and will be more nuanced and specific when it comes to what the formulations achieve. We also discuss the teacher formulations with reference to the context of teaching.

Analyses of institutional interactions have shown that formulations are institution-specific practices where institutional agents (e.g., interviewers, chairs in meetings, therapists) exploit them as a way of achieving some institution-specific goals. This may be exemplified by interviewers achieving neutrality while attending to the needs of an overhearing audience in news interviews (Heritage, 1985), achieving consensus or common ground as a basis for decision making (Barnes, 2007; van Kruiningen, 2013; Waring, 2002), or foregrounding a “therapeutical”, that is, emphasising what needs to be the focus in a therapy session (Hutchby, 2005). In this article, we will show (in line with Drew, 2003; Heritage & Watson, 1979) that teacher formulations have specific functions related to the whole class interactions in which they occur. We describe and identify the functions of conversational formulations in the specific setting of teaching. The institutional agent in our data, the teacher, may resemble the institutional representatives in other settings. However, the interactions between teachers and multiple students rely on specific institutional goals, such as “getting the right information across” or “involving students in their own learning”. Our research will thus contribute by accumulating knowledge and thereby expanding and nuancing the research on formulations as a conversational practice in general and will contribute insight into what doing being a teacher looks like at the micro level.

Data and Method

Our data consist of video recordings of 27 lessons (each about 45 minutes long) in 5 different Norwegian classrooms, collected in accordance with the requirements of the Norwegian Social Science
Data Service. The videos were collected using three different cameras capturing every angle of the classroom. Nineteen of the lessons are from 3 different upper-secondary classrooms where the students are 15–16 years old, while 8 of the lessons are from 2 different primary schools where the students are 11–12 years old. The lessons include natural science, Norwegian language and literature, and social studies and are all taught in Norwegian. Our analytical focus is on teacher formulations in whole class interactions, and we have therefore omitted the parts of the lessons where the teacher is engaged in interactions with small groups or individual students. The data were analysed using CA (e.g., Sidnell & Stivers, 2013) and transcribed following the notation system developed by Jefferson (2004); see the Appendix.

After a thorough examination of the data, we identified 50 instances of teacher formulations, all performed as a third turn in an extended IRE-sequence, which constitute the collection on which we base this analysis. We found that the main characteristics of the teacher formulations were that they selected, deleted, and transformed the students’ contributions, which corresponds with the description of formulations in previous research (e.g., Antaki, 2008; Heritage & Watson, 1979). The collection was further analysed in order to identify the actions the formulations perform in the sequential context. This led to the identification and classification of three different types of teacher formulations, which we labelled transforming, challenging, and summarising teacher formulations. In our analysis, we present and study representative cases of these categories and discuss the different functions they have in classroom interactions. In their seminal paper on formulations, Heritage and Watson (1979) distinguish between gist and upshot formulations. We find that the differences between these formulations may be useful to characterise certain aspects but are not decisive for our categorisation. For example, transforming formulations may involve both gist and upshot formulations.

The formulations we identified in our material resemble teacher repetitions, which we find constitute a substantial part of a teacher’s follow-up of a student’s answer. In classroom interactions, both repetitions and formulations display some kind of teacher understanding of students’ answers, and repetitions and formulations differ from the original utterance in systematic ways (cf. Svennevig, 2003). However, while repetitions mostly display hearing, formulations involve interpretation and re-presentation and thus display understanding (Sacks, 1992, p. 142; cf. Svennevig, 2003). We will argue that the instances we have identified and analysed are instances of formulations, as they have the main functions of selecting, deleting, and transforming the students’ contributions (cf. Antaki, 2008) and thus act as candidate re-presentations (cf. Hutchby, 2005) of students’ contributions.

**Analysis**

The teacher formulations in our data are parts of a sequence of teacher question–student(s) answer–teacher formulation (cf. Hutchby, 2005). We identified three different sub-groups of teacher formulations: transforming, challenging, and summarising. The transformation can range from just a small correction of the students’ wording to a “standalone candidate reading” (Barnes, 2007, p. 280) of the students’ contribution. The challenging formulations resemble the transforming ones, but here it is the students’ opinions (rather than the topical content of their contributions) that are transformed and questioned. The summarising formulations are recaps composed of bits and pieces from the students’ utterances put together to represent a coherent entity. They differ sequentially from the two former types of formulations, as they are based on multiple turns typically performed by different speakers. In the first and second sub-groups of formulations (transforming and challenging), teachers perform their actions on a more local level, transforming the student utterances. In the third sub-group, however, the teacher summarises longer stretches of talk, and the formulations function
as sequence-closing devices (cf. Barnes, 2007). An overview of the three sub-groups of formulations and their frequency in the material is presented in Table 1. In what follows, we present the three sub-groups of teacher formulations and the action they accomplish and discuss the differences between them with regard to the “practical tasks” they perform in classroom interactions (Barnes, 2007, p. 283; cf. Heritage & Watson, 1979), that is, how they are related to teaching.

### Transforming Teacher Formulations

We will now present three sequences where teachers use formulations to transform student contributions on a local level. They follow immediately after the students’ answers to a teacher’s question. The formulations in this group work to transform the students’ utterances, and we show how formulations may transform the content of an utterance to different degrees, from a minimal change of the student’s contribution to a more extensive transformation. This transformation work accomplishes different actions, such as generalising, specifying, and correcting the students’ talk. The three types of transforming formulations we present here are the types identified in the current study; however, they are not necessarily an exhaustive list of the actions the transforming teacher formulations perform. In our collection, we identified 26 transforming teacher formulations.

In Extract 1, the teacher transforms the student’s utterances into a topic-relevant overarching concept, thus generalising the student’s contribution. Prior to Extract 1, the student S1 gave a summary of a book he read as part of an assignment, which was to choose and read a book and present it to the class. As a follow-up, the teacher asks if S1 thinks the book he has presented was amusing (line 1), and S1 responds with an elaborated answer.

#### Extract 1. Generalising student contribution

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>T: synes du boka er morsom? do you think the book is amusing</td>
</tr>
<tr>
<td>2</td>
<td>S1: eh:: ja jeg syns (.) boka egentlig var ganske bra men er yes I actually think the book was quite good But</td>
</tr>
<tr>
<td>3</td>
<td>den- til tider er den litt for lett. det er sann- de it- sometimes it is a little too easy it’s like they</td>
</tr>
<tr>
<td>4</td>
<td>sier- i boka så er det sann (.) eh:: så bra sa Kurt say- in the book it is like er so good said Kurt</td>
</tr>
<tr>
<td>5</td>
<td>ok sa Kirsti så bra sa Kurt det er veldig sann- (.) ok said Kirsti so good said Kurt it is very like</td>
</tr>
<tr>
<td>6</td>
<td>veldig <strong>punktlig</strong>, very punctual</td>
</tr>
<tr>
<td>7</td>
<td>T: [mhm], mhm</td>
</tr>
</tbody>
</table>

#### Table 1. Sub-groups of Formulations.

<table>
<thead>
<tr>
<th>Functions</th>
<th>Transforming TF</th>
<th>Challenging TF</th>
<th>Summarising TF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instances</td>
<td>26</td>
<td>9</td>
<td>15</td>
</tr>
</tbody>
</table>

Note: TF = teacher formulations.

When we have chosen to label the summarising teacher formulations “formulations” and not simply “summaries”, it is based on how these utterances share the properties of preserving, deleting, and transforming (cf. Heritage & Watson, 1979) with the transforming and challenging teacher formulations. Though the summarising formulations include elements from other turns, and not only from the prior turn, they are based on the students’ contribution to prior topic talk, not summaries of, e.g., the teacher’s prior turns. They are therefore considered a third turn in an extended IRE-sequence, initiated by the teacher’s initial question (exemplified in lines 1–4 in Extract 5). In our categorisation of teacher formulations, the summarising formulations differ from teacher summaries.
men hvis du har litt voksent sinn så tror jeg but if you have a more adult mind then I think
boka eh: kan gi litt mer da enn hvis du er the book er may give you more than if you are
for eksempel et lite barn, for instance a small child
S1: mhm, mhm
for eh med tanke på at den er relatert til (. . ) det because er with regard to it being related to that
draipet (. . ) så blir du litt mer sånn (. . ) observant murder then you become somewhat more observant
på de tinga, of those things
S1: mhm, mhm
mens et barn bare tenker atte (. . ) han kjører truck while a child just thinks that he drives a truck
og detter ut i vannet og kommer til den byen og and falls into the water and comes to that town and
blir pastor. becomes a pastor
T: mhm (1 . 3) det vil si at den kan leses på mhm that means that it can be read on
fleire niv|ær det da, kanske=. =jja. several levels then maybe
S1: =jja. yes
T: at voksne også kan ha glede av den. that grownups also may appreciate it
S1: =jja. (. . ) tror kanskje barn har litt større glede av den yes think that children may enjoy it more
men (. . ) voksne ha- også kunne ha lest den.= but grownups ha also could have read it
T: =har vi snakket om hva sånn (. . ) bøker (. . ) kan (. . ) have we talked about what those books may
også bli kalt, sånne barnebøker som også kan- also be called those children’s books that also may
vokse kan ha glede av? grownups may appreciate
S1: =ja.
T: at voksne også kan ha glede av den. that grownups also may appreciate it
S1: =jja. (. . ) tror kanskje barn har litt større glede av den yes think that children may enjoy it more
men (. . ) voksne ha- også kunne ha lest den.= but grownups ha also could have read it
T: =har vi snakket om hva sånn (. . ) bøker (. . ) kan (. . ) have we talked about what those books may
også bli kalt, sånne barnebøker som også kan- also be called those children’s books that also may
vokse kan ha glede av? grownups may appreciate
S1's answer to the teacher’s initial question (line 2) is extended and nuanced, that is, he liked the book but found it quite easy (line 3), and he specifies why (lines 3–6, 8–10 and 16–18). The teacher then makes an upshot formulation, that is, she draws a conclusion based on the student’s contribution —“that means that it can be read on several levels then, maybe” (lines 19–20)—connecting the formulation to the talk using the pro-word “it”. The formulation presents a candidate reading (cf. Heritage & Watson, 1979) of the student’s more elaborated presentation of the difference between how adults and children would interpret the book, which is explicitly shown through her use of “that means” (line 19) and “maybe” (line 20). The formulation has a yes-preferred format and is immediately accepted by the student. The teacher then elaborates on her formulation, adding that “grown-ups also may appreciate” the book (line 22). The student confirms this additional information as well, but nuances the teacher’s assumption slightly (lines 23–24). The teacher then redirects her attention to the whole class, asking a question about whether they have “talked about what those kinds of books may also be called” (lines 25–27), and the lesson goes on.

The formulation in this extract represents a generalisation of the student’s contribution. The teacher’s candidate reading draws a conclusion from the student’s prior talk by selecting and thus highlighting one specific element of the student’s utterance and transforms it into a more general point. She draws an abstract implication based on the student’s contribution, which is clearly displayed when she directs her attention to the whole class in search of a specific term, namely “ambivalent texts” or “double voice” (not shown in the transcript). Additionally, the formulation deletes large
parts of the student’s contribution and thus represents an economisation (Heritage & Watson, 1979, p. 152).

The teacher’s formulation does not correct the student, which we will see examples of in the following analyses, but rather the teacher acknowledges S1’s contribution as relevant for the whole class through her uptake. Therefore, the transformation performed by the teacher is not a standalone candidate reading (Barnes, 2007, p. 280) but rather a general and abstract implication of the student’s talk. However, based on this general implication, it is possible for the teacher to introduce a concept with a higher level of abstraction. One might say that the student and the teacher are steering towards different goals; the student presents the particularities of his book, which is a conditionally relevant response to the teacher’s initial question (“did you like the book”), while the teacher highlights technical terms that are relevant while reading novels in general. The teacher’s further elaboration of “ambivalent texts” underlines the teacher’s focus on curriculum-relevant topics. Thus, the teacher’s formulation transforms the student’s contribution to achieve more general curricular goals.

Another way teachers transform students’ original turns is by adjusting or correcting the content of the contribution. In Extract 2, the students are conducting literary talk and discussing the protagonist in a novel. The sequence of interest starts where the teacher asks whether the protagonist is a static or dynamic person.

Extract 2. Correcting student contributions

1 T: vil du si at eh: (. ) er dette- (xx) >den første du< sa
would you say that er is this the first you said
2 hva het han.
what was his name
3 S1: Niclas.
Niclas.
4 T: Niclas. er Niclas en statisk eller dynamisk person? (. ) hvis du
Niclas is Niclas a static or dynamic person if you do not
5 ikke husker forskjellen så kan du spørre.
remember the difference then you may ask
6 ikke husker forskjellen så kan du spørre.
remember the difference then you may ask
7 S1: altå, han har vel- (.) han forandrer ikke på personligheten sin,
well he has he doesn’t change his personality
8 men eh:
but er
9 (. ) det hatet mot (. ) menn |da som skader kvinner det blir bare
the hate against men then who hurts women it grows
10 sterkere
stronger
11 så han forsterker egentlig bare det (. ) det vi får (høre om) i
so he strengthens actually that what we are (told) in the
12 starten.
beginning
13 T: mhm
14 S1: å:: (. ) he eh::m (0.8)
and he er
15 T: så da for|andrer han seg på en måte litt.=
so then he changes in a way a little
16 S1: ja litt men det er <jo ikke noen stor> forandring det
yes a little but there is no bi:gl: change it
17 er bare en[liten forskjell]
is only a little difference
18 T: [nei] , den (pleier) ikke være så stor.
no it (doesn’t need) to be that big
19 S1: ja, det gjør det.=
yes there is
20 T: =den andre da. han eh som jeg ikke husker hva heter.
the other one then er who I don’t remember the name of
The teacher’s question in line 4 is an alternative question. Alternative questions invite as an answer “one of the two alternatives in the question” (Koshik, 2005, p. 194). The question makes relevant either “static” or “dynamic” as an appropriate answer. After a short clarifying side sequence (omitted lines), the student asserts in line 6 that the protagonist does not change. However, he claims that the protagonist’s hate increases during the novel (line 8). This answer appears ambiguous, but leans towards the second alternative. This impression is supported by the student’s “there is no big change”, in line 15. The teacher’s formulation in line 14 starts with the turn initial “so” that connects it to the student’s prior turn (“so then in one way he changes a little”). The causal markers “so” and “then” show that the teacher draws a conclusion based on the student’s prior turn. In addition, the turn has a final and concluding intonation and can be heard as an assertion that invites agreement and an acknowledging “yes”. The teacher’s formulation appears as a challenge to the student’s answer. The following response from the student in line 15 (“yes a little but there is no big change”) has a dispreferred turn shape and is constructed as a weakly stated disagreement component, which involves partial agreement (“yes a little”) and partial disagreement (“but there is no big change”) (cf. Jefferson, 1984). As a response to this, the teacher overtly corrects the student, saying that the change is not very big, but there is a change in the character (lines 17–18), wherupon the student finally acknowledges the teacher’s correction with a “yes, there is” (line 19).

The teacher’s formulation in line 14 is a candidate reading of the student’s prior turn, a gist formulation that displays the teacher’s understanding of the prior turn. What is analytically interesting in Extract 2 is that the teacher’s formulation (“so then he changes in a way a little”) reverses the content in the student’s utterance (“he doesn’t change his personality”). The ambiguity in the student’s response (the character does not change, but his hate increases) may allow the teacher to formulate his contribution into a contrary characterisation of the protagonist. The teacher formulation thus serves to adjust and correct the student’s conclusion. By correcting the student’s original contribution, the teacher transforms it into a second pair part, a response that implicitly fits one of the two categories she presents in her initial alternative question (“is Niclas a static or dynamic person?”, line 4). In addition, the teacher demonstrates a second pair part that may represent an adequate and correct answer to her initial question.

The formulation in Extract 2 initiates a repair sequence2 (Schegloff, 2007, p. 101), where the formulation functions as an implicit correction of the student’s contribution. When the student rejects the teacher’s correction with a dispreferred response and disagreement in line 15 (“yes a little but”), the teacher provides a more overt correction (“there is a change”), at which point the student finally acknowledges the repair (“yes, there is”). Thus, the formulations perform an implicit correction without explicitly claiming that the student’s answer is wrong. By building on the student’s contribution, the correction is downplayed, while the teacher’s uptake and acknowledgment of the student’s contribution is foregrounded.

The use of formulation here (as a correction) may be classified as one subset of repair, e.g., “other initiation” of “other repair”. Other initiation of other correction has been found to be more frequent in classrooms than in ordinary conversation, and more frequently performed by teachers than by students (Macbeth, 2004, p. 729; McHoul, 1978, 1990). One reason is that the participants are oriented to pedagogical goals, and there are certain expectations about how students’ and teachers’ roles are played out. In Extract 2, the teacher elicits from the students’ talk what should count as relevant and correct answers for the pedagogical record. As the teacher, she typically has the epistemic right to decide what should count as “shared knowledge”. By providing a correction, the teacher transforms the student’s ambiguous contribution into a relevant, adequate, and “correct”

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2We use the term “repair” as a generic term, which covers a wide range of phenomena (Hutchby & Wootfitt, 1998, p. 57), including corrections. In line with Macbeth (2004, p. 703), we view repair as a prior order of discursive work and a premise for correction. We view correction as a subset of repair (Gardner, 2013, p. 604). Whereas repair is tied to the achievement of common understanding, classroom correction is tied to a normative order of correctness and correct answers (Macbeth, 2004, p. 729).
contribution, which can qualify as shared knowledge and knowledge that is relevant to the curriculum.

In Extract 3, the teacher in Norwegian has previously given the students a writing task (“Write a letter to the headmaster where you consider the pros and cons of homework”) and instructed the students how to write an argumentative text. The teacher then asks the students how they will design their text to convince the recipient (the headmaster). After a rather general response to this question, the teacher produces a gist formulation that specifies a student’s response.

Extract 3. Specifying student contribution

1 T: hva kan eh:: i ø: what can er i ø
2 hva vil det gjøre med teksten din kanske what would it do to your text maybe
3 at rektor er mottaker that the headmaster is recipient ((gives the floor to S1))
4 (2.0)
5 S1: at du: vil gjøre det bedre (at du prøver å få en bedre tekst) that you will improve (that you will try to make a better text)
6 fordi du vet at kanske rektor skal se det because you know that maybe headmaster is going to see it
7 T: du tenker at eh: argumentene dine skal- you think that er your arguments should-
8 at det skal være god hold i dem at de skal that it should be good hold in them that they are supposed to
9 være gode, overbevisende, be good convincing
10 ja, yes
11 ((gives the floor to another student))

The teacher’s question in lines 1–3 (“what would it do to your text maybe that the headmaster is recipient?”) is focused on the text and makes relevant a rather specific response. The student, however, responds to the teacher’s question in rather general terms (“you will improve”), and the emphasis is on the headmaster (“because you know that maybe headmaster is going to see it”), rather than giving a more text-specific response. The teacher’s formulation that follows in line 7 is initiated by a quote marker (“you think that”), which serves to connect the teacher’s formulation to the student’s prior talk. The teacher introduces a new reference (“arguments”) and adds three new elements (“good hold”, “good”, “convincing”) that are not recognisable from the student’s turn. The turn ends in line 10 with the teacher’s confirming “yes” with continuing intonation. A new sequence then starts, where the teacher appoints a new speaker.

What is noticeable here is that the teacher’s formulation adds completely new content on behalf of the student. By using the quote marker “you think that”, the teacher designs her turn as if it were a representation of the student’s contribution. She transforms the student’s prior talk into a candidate reading of how the text will be influenced by the addressee. In contrast with the teacher’s correction in Extract 2, the teacher formulation is not followed by any disagreement, account, or acknowledgment from the student. While the correction in 2 was more exposed and negotiated, the correction in 3 is embedded (Jefferson, 1987). It acknowledges the student’s contribution while simultaneously producing an alternative to it, without overtly making the correction an “interactional business” (Jefferson, 1987). By adding new information, the teacher specifies the student’s contribution (“better text”) and transforms it into a more specific, relevant, and preferable version (“good and convincing arguments”). Whereas there are no immediately recognisable elements from the student’s talk, the formulation may be characterised as a “standalone candidate reading” (Barnes, 2007, p. 280; Heritage & Watson, 1979). By specifying the student’s turn, the teacher transforms it into a contribution that may qualify as a more adequate, appropriate, and correct answer to her initial question. In other words, the teacher
transforms the student’s contribution into one that is more precise and relevant for the curricular goal, which is to provide concrete characteristics of the text the students are going to write.

In the three previous examples, we have shown how formulations may transform the content of students’ contributions. The transformations may vary from minimal ones (as in Extract 1) to more extensive ones (as in Extract 3). In Extract 1, the formulation served to acknowledge the student’s contribution, while simultaneously drawing a more general/theoretical and pedagogical point out of it. In that way, the teacher’s formulation works to connect the student’s contribution with a scientific/technical concept (cf. Skovholt, 2016) and a curricular goal. In Extract 2, the teacher’s formulation initiated a repair sequence to correct the student’s “error” or “insufficient answer”, thus transforming it into a correct and sufficient answer. The formulation constituted an implicit correction, where the student’s dispreferred response/disagreement led the teacher to make a more overt and exposed correction that the student finally accepted. The transforming formulation in Extract 3 worked as an embedded correction by specifying the student’s contribution. In summary, the transforming teacher formulations work to present a version of the student’s contribution that is adequate, correct, and in line with pedagogical and curricular goals, thus preserving the “learnable” for the whole class, that is, “whatever is interactively established as relevant and developed into a shared pedagogical focus” (Majlesi & Broth, 2012, p. 193).3

**Challenging Teacher Formulations**

The teacher formulations presented so far transform the students’ contributions. However, they may be viewed as cooperative, as they help get the students’ points across (cf. Heritage, 1985, p. 107). One group of formulations that is quite similar to the formulations we have labelled transformations are those where the teacher’s transformation in some way challenges the students’ contributions. Whereas the transforming teacher formulations modify the topic content the students present, the challenging ones typically contest the students’ opinions, that is, the teachers make the students accountable as people who present opinions about a topic that are questionable in some way. Therefore, we have chosen to categorise them as a separate sub-group of teacher formulations. In our collection, we identified 9 out of the 50 formulations as instances of challenging teacher formulations.

Extract 4 is from a science lesson where the topic was genetic engineering. The students watched a film clip of different attempts at genetic modification (including one with racetrack dogs, which is made relevant here). Prior to the film clip, the teacher handed out a question sheet. At the point of the extract, the teacher is reading one of the pre-formulated questions, “Which organisms do you think it is acceptable to genetically modify?” (line 1) and rephrasing the question in line 2: “What can we genetically modify?” S1 self-selects and answers “plants, animals” (line 3).

Extract 4. Challenging student contribution

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>T: &lt;hvilke (. ) organismer meiner du (. ) det er akseptabelt å genmodifisere&gt; . ((leser)) hva kan vi genmodifisere? genetically modify ((reads)) what can we genetically modify</td>
</tr>
<tr>
<td>2</td>
<td>S1: planter dyr. plants animals</td>
</tr>
<tr>
<td>3</td>
<td>T: opp med ei hand, raise your hand {S1 raises his hand and self-selects}</td>
</tr>
</tbody>
</table>

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3We use the concept “learnable” according to Majlesi and Broth’s (2012) definition. The concept “learnable” is also used by Zemel and Koschmann (2014, p. 164) and defined as “what is contingently produced and demonstrated by participants as learnable within their embodied interaction”. Macbeth (2014) criticises Zemel and Koschmann’s use of the concept and claims that they at the same time treat the “learnable” as an object and as an observable action, and thereby make a conceptional confusion of “the process of learning” and the product. For the purpose of this article, “learnable” is considered a contingently produced and negotiated object, and we do not claim to identify learning per se. The discussion of the concept of “learning” is an important one, but one not addressed in this article.
S1: planter dyr,
plants animals
S2: hehe
T: planter. (. ) dyr.
plants animals
S1: i framtiden kanske mennesker.
in the future maybe humans
S3: lage super [mennesker],
make super humans
T: [så: e:h] det er heilt greit det er heilt grei også
so er it’s quite OK it’s quite OK to
gå inn også::
go in and
S1: jeg sier ikke at det er greit [jeg sier kanske].
I’m not saying it’s OK I’m saying maybe
T: [klone] klone e::h
cloning is.
S4: °sau°
sheep
T: nei gå inn også modifisere genene te (. ) veddeløphunder?
no to go in and modify the genes of racetrack dogs
S1: [nja:::]
well
T: [for å gjør] for å gjøre dem e::h ekstra raske?
= to make to make them er extra fast
S1: =) ja men da blir de jo do:pa [da]
yes but then they are doped
S3: [jeg] synes det er greit hvis (.)
I think it’s OK if
de kan si ja.
they can say yes
S1: de ødelegger e- evolusjonen da,
they mess up e the evolution
Sx: hehehe
S3: alt er greit så lenge det ikke skader non.
anything is OK as long as no one gets harmed
S5: [så lenge de ikke lider så syns jeg det er greit.
as long as no one suffers I think it’s OK
alt er greit så lenge det ikke skader noen?
anything is OK as long as no one is harmed
S6: ja:,
yes
T: det med å skade er relativt begrep.
harming is a relative concept

At the beginning of this extract, the teacher poses a question, which she immediately reformulates. There is a discrepancy between the pre-formulated question the teacher reads first, which stresses acceptability, and her immediate reformulation of the same question, which may imply possibility. When S1 answers the question (lines 3 and 5), his response indicates that it is the second question, “What may be genetically modified?”, which he responds to. The teacher’s formulation “So it is quite OK to go in and […]” (lines 10–11) is a candidate reading of S1’s answer and connects the formulation to the student’s previous utterance with the inference marker “so”. However, the teacher’s formulation adds the implication that it is “quite alright” to genetically modify “plants, animals” and “in the future, possibly humans”. When S1 responds (line 12), it is this implication he opposes, stressing that it might happen. Thus, we can see that the formulation and the opposing response are probably the result of the ambivalence in the teacher’s initial questions, as S1’s reply in line 12 displays an understanding of the question as being one about possibility rather than acceptability. The teacher does not comment on S1’s third position repair in line 12 (“I’m not saying it’s OK, I’m saying maybe”). Instead, she sequentially deletes S1’s utterance (cf. Lerner, 1989) and continues to elaborate on her formulation. She includes an example of the genetic modification of racetrack dogs, which formulates a version of the student’s opinion that he might be expected to deny (cf. Heritage, 1985, p. 112), which S1 ultimately does. In his further contributions, S1 expresses hesitation through
his “well” (“nja”) (line 16) and his statements that the genetic modification resembles “doping” and “messes up evolution” (lines 18 and 21), indicating that he does not think it is okay to genetically modify racetrack dogs.

This extract includes an additional challenging teacher formulation. The second teacher formulation, “anything is OK as long as no one is harmed” (line 25), closely resembles a repetition, as it is more or less identical to S3’s utterance in line 23. The added stress on “anything” and “harm” is selecting parts of the student’s utterance and may indicate some problem with acceptance on the teacher’s behalf. However, we will claim that the teacher’s utterance in line 25 is a formulation and not a repetition, as it is addressed to more than one student; that is, the formulation responds to the claim of collective utterances, which can be synthesised as “anything is OK as long as no one is harmed”. This is further supported by the fact that the student, S6, who accepts the teacher’s formulation in line 26, has not previously uttered an opinion. After this confirmation, the teacher elaborates, indicating a problem with the collective student opinion and starting a new sequence about the ethical implications of genetic engineering with her utterance in line 27, that harming is “a relative concept”, which leads to a discussion of what kind of physical consequences genetic engineering could have for racetrack dogs (not shown in the transcript). Therefore, the sequence ends with the teacher taking an explicit stance regarding the aspect of “harming” (line 27). In the end, the discussion is steered towards the curricular “truth”—that one must consider the ethical implications of genetic engineering.

Extract 4 presents two teacher formulations of student opinions with slightly different features. The teacher’s first formulation (lines 10–11) is an upshot of the students’ opinion, being inferentially elaborative (Heritage, 1985, p. 101) as it adds a specification of the student’s assertion by the inclusion of an example of genetic engineering. This inclusion contributes to a more pointed version of the student’s initial assertion. Through the second formulation (line 25), the teacher “probes” the students’ opinions by testing how far they are willing to go (Heritage, 1985, p. 110). These formulations thus resemble Heritage’s (1985, pp. 108–109) notion of “the inferentially elaborative probe”, which he claims has the function of testing some aspects of an interviewee’s actions, intentions, or attitude, the latter being the most relevant here, as these formulations are making the students accountable for an opinion. Heritage (1985, pp. 108–109) claims that these formulations are uncooperative, as they are designed to commit someone to a stronger (and more newsworthy) version of his statement, which probably will be denied.

In a similar manner, the challenging teacher formulations invite the students to disagree with the pointed version of their opinions and possibly to nuance or denounce them. In our extract, S1 disagrees with the implications in the teacher’s first formulation, that is, he takes advantage of the opportunity to modify his response (the preferred action following the formulation). S1, however, does not denounce the implication of the formulation, that is, his response leads the teacher to choose a new angle to challenge the students’ opinions. Thus, the challenging teacher formulations allow the students to “own” their opinions but at the same time invite the students to have a critical view of their own (lesser informed?) statements. This corresponds to the curricular goals of critical thinking in the Norwegian curriculum. The teacher does not explicitly say that the students’ opinions are wrong but finds a more implicit way of questioning them. Thus, through formulating, the teacher avoids overtly disagreeing with or negatively assessing the students’ opinions but maintains an apparently neutral stance (see also Heritage, 1985, p. 111).

**Summarising Teacher Formulations**

In the previous sections, the teachers used formulations to transform or challenge students’ contributions. In contrast, we will now see teacher formulations that summarise a long stretch of talk produced by one speaker or by various speakers. In these cases, the formulations do not receive a confirmation and disconfirmation, and the formulations serve to close down a topic and terminate the whole sequence.
Prior to Extract 5, there was a question–answer sequence where five different students answered, naming different parts of a cell (DNA, RNA, mitochondria, etc.). The teacher then showed the students a film with an animation of the processes that occur inside a cell. At the beginning of Extract 5, the teacher reintroduces one of the terms, mitochondria, and directs a question to the student S1, who, after some delay, answers.

Extract 5. Summarising students’ contribution

1  T:  vet du hva mitokondriene gjør da
   do you know what the mitochondria are doing then
2  S1,  >siden du husker de?<
   since you remembered them
3  Sx:  "hva var det igjen,"  
   what was that again
4     (3.2) 
   they give energy to the cells
6  T:  gir energi til cellene. har dere vært borti den prosessen
   give energy to the cells have you touched that process
7  som gir energi til cellene? hva kaller vi den?
   that gives energy to the cells what do we call it
8     (2.0) 
9  S2:  "åh celleånding"=
   oh cell respiration
10  T:  =c elle[ ånding].
   cell respiration
11  S2:  "[ne:ij]°
   no
12  T:  [helt] riktig.
   quite right
13  S2:  "[jo]°
   yeah
14  S2:  "jo"  
   yeah
15  T:  det var det vi hadde om i kapittel fire. (2.1)
   that was what we had about in chapter four
16  husker dere hva celleånding er?
   do you remember what cell respiration is
17  S3:  det motsatte av eh:::[fotosyntesen]
   the opposite of eh the photosynthesis
18  Sx:  foto[syntesen]  
   photosynthesis
19  T:  altså -
   well
20     (1.9) 
21  S2:  eh u bruker iafall e::h (2.8) bruker glukose
   er u uses anyway er uses glucose
22  T:  bruker glukose (.) og -
   uses glucose (.) and
23     (1.9) 
24  S2:  oksygen,  
   oxygen
25  T:  oksygen.
   oxygen
26  T:  hva er det - hva er pru- (. ) duktet vi får uta det?=
   what is it what is the product we get out of it
27  S2:  =energi og vann.
   energy and water
28  T:  =energi, vann og -
   energy, water and
29  S1:  og[CO2]  
   and CO2
30  Sx:  [CO2]  
   CO2
Sx: "karbondioksyd (xxx)"
carbon dioxide
T: og CO₂. (1.9) så mitokondriane (.) tar inn (1.0)
and CO₂ so mitochondria takes in

32

33
glukose og oksygen, (2.1) gluokse og ok- oksygen blir
glucose and oxygen glucose and ox- oxygen are
transportert med blodsystemet, blir først inn over
transported by the blood system, are carried over
cellembranen og så kan vi bruke det i cellene. (0.3)
the cell membrane and then we can use it in the cells
da blir det transportert til mitokondriane. (1.9)
then it gets transported to mitochondria
sånn at gluokse og oksygen (.) blir brukt her? (0.6) så
so glucose and oxygen (.) are used here
får vi utvinne energi, (.) får vi ut ATP (2.2)
we get to extract energy we get out ATP
og så får vi vann (.) og CO₂ som avfallsstoffer |som
and then we get water and CO₂ as waste products that
kan bi f- bi frakta ut av cellene| (2.9) over
can be t- be transported out of the cells into
i blodet og bli (.) pusta ut. (3.1) det var det.
the blood and be exhaled that’s that

This extract begins with a teacher question directed at S1, based on his prior display of acquaintance with the term mitochondria. S1 answers (line 5) and the teacher acknowledges the answer by repeating S1’s utterance. The teacher then expands the topic with two follow-up questions (lines 6–7). S2 answers, and the teacher ratifies the answer, adding that all the students were supposed to know this, thus making them accountable for knowing what comes next, a question about the process of “cell respiration” (line 16). In lines 17–31, different students answer the question in bits and pieces, while the teacher gives different signals that the students’ answers are incomplete. In line 19, the teacher’s use of a causal marker, “well” (“altså”), signals that “the opposite of the photosynthesis” needs a follow-up. In line 22, a “designedly incomplete utterance”—that is, a teacher turn designed for the students to fill in a missing word or phrase (Koshik, 2002)—indicates glucose is not a complete answer and an additional follow-up question in line 26 indicates that the topic needs a more thorough answer. S2 answers this follow-up, but the teacher signals the lack of a complete answer by uttering another designedly incomplete utterance in line 28. In line 32, the teacher starts by confirming CO₂ as the “missing piece” of her utterance (line 28). This is followed by a lapse. The teacher then gives a coherent summary of the cell respiration process (lines 32–41) that is connected to the prior talk by the prefatory inference marker “so”. This closes the sequence.

The coherent summary in lines 32–41 is what we will argue is a summarising teacher formulation. Although the teacher repeats parts of the students’ talk, mainly on a lexical level, such as “uses glucose” (line 21) and “energy and water” (line 27), the teacher clearly selects specific parts of the students’ contributions and connects these pieces to an entity, which is developed into a coherent teacher narrative. The teacher formulation in Extract 5 is an accumulation of the different student contributions delivered as a coherent presentation of the content of the prior talk, as it stresses that the point of mitochondria is their function in the cells and that “cell respiration” is a process with an outcome. The formulation thus “re-presents the details of the prior report in a more robust, explicit and summary fashion” (Heritage, 1985, p. 103) and produces a hearable, understandable, and shared topic content, which represents the preservable and reportable features (Barnes, 2007, p. 284) of prior student talk. This process of selection is also apparent in the talk leading up to the formulation, as the teacher steers the students’ contributions through her use of follow-up questions and designedly incomplete utterances.

When teachers select parts of a student’s utterance, they are consequentially deleting other parts. This makes the summarising teacher formulations resemble the transforming ones. However, while the deletion in the transforming formulations typically changes the essence of the students’ utterances, the deletion in the summarising ones merely disregards the pieces of the students’ contributions that do not fit into the coherent presentation of the topic content. In
addition, more than one student typically utters the pieces that the teachers use. As such the teachers’ formulations are relatively less coupled to the prior talk, which is also reflected in the lack of student responses to these teacher formulations. Sequentially speaking, the summarising teacher formulations also differ from the transforming ones, as they typically perform the practical task of pre-closing (cf. Barnes, 2007); that is, they signal that a transition to another topic is possible. Since none of the summarising teacher formulations are followed by student acceptance or rejection (i.e., no acknowledgment tokens are uttered), they allow a smooth transition to the next topic (Barnes, 2007, p. 286).

The summarising teacher formulation establishes the outcome so far and demonstrates how teachers can use formulations to mark acceptance of students’ contributions (cf. Barnes, 2007, pp. 283–284); that is, the teacher ratifies parts of the students’ contributions as part of the coherent representation of the curricular topic content. This coherent entity represents the correct and complete answer to the initial teacher question and is closely connected to the curricular aim of the talk. Thus, the summarising teacher formulations are in themselves the learnable, that is, the shared pedagogic focus in these extracts.

Discussion and Conclusion

In this study, we identified three types of teacher formulations that perform different tasks in classroom interactions—transforming, challenging, and summarising formulations. The transforming teacher formulations work on student assertions, making them “adequate for all practical purposes” (Macbeth, 2004, p. 722), as they are presented in topically relevant terms that are nuanced and factually correct. The analysis has shown that the transforming teacher formulations may generalise and acknowledge the students’ contributions (Extract 1), implicitly correct the students’ contributions (Extract 2), and specify the students’ contributions through embedded correction (Extract 3). Thus, the transforming teacher formulations may acknowledge the students’ contributions (Extract 1) but also serve as repair initiations (Extracts 2 and 3). The challenging teacher formulations are quite similar to the transforming ones; however, they emphasise the students’ opinions as question-able and make the students accountable for their opinions. The summarising teacher formulations transform the students’ cumulative contributions from a longer stretch of talk into a textual entity that can count as reportable.

Sequential Characteristics

The three groups of formulations identified in this study have different sequential characteristics. The transforming and challenging teacher formulations are locally established, as they formulate the prior turn and typically lead to elaboration of the topic introduced. In contrast, the summarising ones draw on longer stretches of talk and typically rely on contributions from more than one student. Furthermore, they differ when it comes to the response they get. The transforming and challenging formulations allow for a response. They leave a sequential slot where the students may ratify or reject the teacher’s formulation. In our data, the students actually take advantage of the opportunity to adjust or reject the teachers’ candidate reading of their talk, both when the formulations are formatted to allow for a rejection (like Extract 4, first formulation) and when a yes-preferred response is implied (like Extract 1). This shows that formulations allow students to resist their implications; thus, they are interactionally established and executed.

The summarising teacher formulations in our collection receive no response. The summarising formulations give the impression of commonly achieved topic knowledge. As such, they represent what the students and the teachers agree upon at a certain point in the interaction. Potentially, the students could negotiate the representativeness of the summarising formulations as well. However, sequentially, these formulations represent pre-closings, which according to Barnes (2007,
make the conditionally relevant response a non-response, thus allowing a transition to the next topic with minimal disruption.

The summarising formulations always lead to topic transition and conclude a communicative project (cf. Barnes, 2007). In meeting interactions, chairs seem to use formulations as a way of achieving apparent common agreement to that point so as to move on to the next topic on the agenda. As Heritage and Watson (1979) have shown (see also Barnes, 2007, p. 286), formulations are adequate for closing down a topic as a mentionable and supply a smooth transition to the next topic. In our extracts, the teacher has the final say when it comes to deciding when the students have contributed enough bits and pieces to formulate a coherent and conclusive summary and when it comes to changing the topic. In contrast, most of the transforming and challenging formulations in our material lead to topic elaboration.

Establishing “the Learnable”

Teacher formulations highlight specific elements of students’ contributions without overtly correcting the students. When teachers formulate, they pick out something in the students’ utterances and make it appear as a neutral summary or an implication of their contributions. The teacher simultaneously edits the students’ talk in ways that orient to institutional interests (cf. Antaki, 2008, p. 34). Heritage (1985, p. 101) claims that formulations allow news interviewers to retain a neutral position. However, the formulations in themselves are rarely neutral; “rather, they act as candidate re-presentations of what an interlocutor can be taken as having said or meant” (Hutchby, 2005, p. 310). In our analysis, we found that the teachers orient to institution-specific goals, and in topic talk this is to get across “the right” knowledge to the students, knowledge that is linked to pedagogical and curricular goals. The teacher formulations highlight something adequate, coherent, appropriate, correct, or relevant, something that should be a shared pedagogic focus. The teachers exploit slots in the ongoing classroom interaction to highlight parts from students’ contributions that are relevant to the curriculum. One might say that the teachers’ formulations zoom in on teaching-relevant factors (cf. “the therapeuticals” in Hutchby, 2005, pp. 316–317), that is, what should count as reportable from a specific stretch of talk in the classroom interaction. Thus, the teachers’ formulations highlight what is worth learning, that is, the learnables (cf. Majlesi & Broth, 2012).

Formulations are devices for steering the interaction with regard to curricular and institutional goals while ostensibly building on student contributions. When formulating, the teacher zooms in on some elements of students’ talk as learnables for everyone; thus, they represent a way of acknowledging the students’ contributions. However, the teacher is the one with sufficient knowledge to “proofread” the students’ contributions. Therefore, she has the right to formulate (cf. Barnes, 2007, p. 292), which ultimately gives the teacher the right to steer the topic content in a direction that foregrounds the learnables, such as technical and generalised concepts, and avoid factual mistakes. In our data, the formulations of topic talk are all performed by the teacher. This demonstrates the teacher’s institutionally inscribed rights and obligations to ratify, reject, or adjust the students’ topic talk according to the curriculum, that is, to ensure the students actually learn something and that this something is factually correct knowledge.

In classroom interactions, what one student utter needs to be right or understandable for everyone in the room. Research on therapeutic interactions has shown that therapists’ formulations mainly serve as a way of establishing intersubjectivity or agreement between the patient who actually uttered the talk and the therapist who needs to establish the grounds for further therapy talk (Antaki, 2008; Hutchby, 2005). In contrast, teachers’ formulations in classroom interactions are not primarily used to reach agreement but to establish common ground for the whole class, not only for the students whose talk the formulations actually build on. In this way, teacher formulations are related to news interviewers’ formulations, which Heritage claims are primarily formulated for an “overhearing audience”. In news interviews, formulating utterances are more directly addressed to the overhearing audience than the majority of questions and answers.
Based on our data, it is hard to establish whether this is the case in classrooms. The point of "the overhearing audience" is, however, an absolutely valid one for teacher formulations in whole classroom interactions where in fact all question-answer sequences are performed with the overhearing audience as a consequential feature. Thus, teachers' formulations have a double objective: tending to the talker's need for respect while tending to all students' need for information that is sufficient for all practical purposes. Therefore, formulating is a practice that allows the teacher to show that she has listened to the students and has extracted something they might have said themselves. In that sense, formulating students' utterances appears as an attentive way of teaching (see also Antaki, 2008, p. 42).

As shown in the review, previous non-CA research on classroom interaction has established a distinction between "dialogic" and "authoritative" teacher moves and categorises teacher formulations as an authoritative teacher move (Furtak & Shavleson, 2009). Our analysis has shown that the teacher formulations actually build on and acknowledge the students' talk, something that demonstrates the inherent dialogicality of the putatively "non-dialogic" teaching strategies. We argue that it is not possible to establish a priori categorisations (such as "dialogic" and "authoritative") of a conversational practice, because the actual functions and consequences of the practice are highly context specific and contingent (cf. Lee, 2007). Our study has shown the potential strengths of CA in problematising such prior distinctions.

Our analysis has contributed by accumulating knowledge about the actions formulations perform in general. We have also shown that the teachers' third turns are slots where teachers perform different actions and practices, one of them being formulating students' prior turns and highlighting the learnable in their contributions. Thus, our study adds to the picture of the complexity of the third turn, or "evaluation" (cf. Lee, 2007). Although we have drawn on types of formulations identified within different institutional contexts in previous research, we have highlighted the specific functions that teacher formulations serve in a classroom context. We have shown that teacher formulations in topic talk are an important part of doing teaching and serve different and specialised functions in classroom interactions. On the one hand, the teachers treat the students' talk as imprecise, vernacular, and incoherent as they specify, redress the talk in technical language, and provide a more "coherent" version of the students' prior talk. On the other hand, the teacher formulations are flexible teaching strategies as they exploit in situ openings in classroom interactions to establish the learnable, that is, what is supposed to be "learned" from the prior talk. Formulations appear to be a routine pedagogic practice, a regular part of doing teaching.

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Disclosure Statement

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References


Appendix. Transcription conventions

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1.5)</td>
<td>Time gap in tenths of a second</td>
</tr>
<tr>
<td>()</td>
<td>Pause in talk of less than two-tenths of a second (micro pause)</td>
</tr>
<tr>
<td>[]</td>
<td>Marks the point of onset and end of overlapping talk</td>
</tr>
<tr>
<td>=</td>
<td>“Latching” between utterances, either by different speakers or between units produced by the same speaker</td>
</tr>
<tr>
<td>?</td>
<td>Rising intonation, not necessarily a question</td>
</tr>
<tr>
<td>.</td>
<td>Falling or final intonation, not necessarily the end of a sentence</td>
</tr>
<tr>
<td>,</td>
<td>“Continuing” intonation, not necessarily a clause boundary</td>
</tr>
<tr>
<td>::</td>
<td>Stretching of the sound just preceding. The more colons, the longer the stretching</td>
</tr>
<tr>
<td>↑↓</td>
<td>Marked shift into higher or lower pitch</td>
</tr>
<tr>
<td>word</td>
<td>Stress or emphasis of underlined item. The more underlining, the greater the emphasis</td>
</tr>
<tr>
<td>WORD</td>
<td>Markedly louder volume than surrounding talk</td>
</tr>
<tr>
<td>° °</td>
<td>Talk between the degree signs is markedly softer or quieter than surrounding talk</td>
</tr>
<tr>
<td>&lt;word&gt;</td>
<td>Slower speech rate than surrounding talk</td>
</tr>
<tr>
<td>&gt;word&lt;</td>
<td>Faster speech rate than surrounding talk</td>
</tr>
<tr>
<td>-</td>
<td>Cut-off or self-interruption of the prior word or sound, often done with a glottal or dental stop</td>
</tr>
<tr>
<td>(())</td>
<td>Transcriber’s comments on proceeding talk (e.g., description of non-verbal activities)</td>
</tr>
<tr>
<td>(word)</td>
<td>Transcriber’s best guess of an unclear fragment</td>
</tr>
<tr>
<td>(xxx)</td>
<td>Inaudible talk</td>
</tr>
</tbody>
</table>