Connecting to the outside:

The cultural resources teachers use when contextualizing instruction

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ABSTRACT

The aim of this article is to examine what resources teachers mobilize when *contextualizing instruction*. In this instructional method, teachers use students' everyday experiences as tools for teaching subject matter at school. Research has documented that contextualizing instruction can support classroom learning. However, we do not know very much about what types of resources teachers view as relevant in this type of instructional work. In this article, we analyze video data of student-teacher interaction in 43 lessons, which was collected when following 4 lower secondary teachers over one academic year. The analysis is based on a sociocultural perspective of learning and teaching in which the focus of analysis is on what kind of everyday experiences teachers orient to when supporting student's reasoning about academic matter. The findings show that the resources that teachers orient to can be grouped into five categories, which represent different resources as part of the students' everyday life: (1) Teachers orienting to characteristics of the local community, (2) Teachers orienting to examples from everyday practices, (3) Teachers orienting to personal issue, (4) Teachers orienting to concrete objects and (5) Teachers orienting to knowledge from traveling abroad. These categories show variation and multiplicity of resources that teachers use when contextualizing instruction, and the implications of this multiplicity are discussed in the article.

Introduction

Ideas about the importance of bridging students' experiences from school and everyday life can be traced back to thinkers such as John Dewey and Lev Vygotsky. Dewey (1959) emphasized that learning in school should build on and extend experiences students gained outside school, and Vygotsky (1987) was preoccupied with how everyday and scientific concepts stand in a mutually constitutive relationship. More recent researchers have argued for the importance of making students' everyday knowledge and experiences relevant in their learning at school (Grossen, Zittoun, & Ros, 2012; Moje et al., 2004; Scott, Mortimer, & Ametller, 2011). In addition, in recent years policy documents have also reflected the intention of drawing on students' everyday experiences as a way of encouraging motivation and engagement for learning among students and as a way of increasing performance in subject domains and counteracting dropout rates (Author2, 2013)[1].

However, an important concern in this regard is how teachers actually orient themselves toward students' out-of-school practices and experiences and treat these as resources in their teaching. Some researchers have investigated how teachers develop strategies for mobilizing students' experiences and knowledge in their instructional trajectories (Dworin, 2006; Moje et al., 2004; Nasir, Hand, & Taylor, 2008). This research shows the potential of using students' "everyday life" as a resource for supporting them in different instructional domains. However, we also need more knowledge about how these processes play out in naturally occurring classroom interactions over longer periods of time, and about what aspects of students' everyday lives teachers assume will be relevant when guiding students' academic work.

In this article, we will analyze the resources a group of teachers used when *contextualizing instruction* in different lessons over one academic year. This instructional method, as used within science education, refers to "the utilization of particular situations or events that occur outside of science class or are of particular interest to students to motivate and guide the presentation of science ideas and concepts" (Rivet & Krajcik, 2008, p. 80). Contextualizing instruction is about using events or interests that students see as relevant in their everyday life outside school as points of departure or references that enable students to deal with subject matter in school. We will analyze contextualizing instruction as involving both individual and collective processes, and the aim is to identify and analyze the aspects of

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[1] See, for example, Norwegian White Paper No. 22 (2010-2011), "Motivation-Coping-Possibilities."

students' everyday practices that teachers use in interactions with their students for the purpose of guiding their academic work.

In this article, the main purpose is to address the following research question: *What kinds of resources do teachers orient to when contextualizing instruction?* This is an important issue because it can tell us something about what kinds of everyday knowledge resources teachers themselves consider relevant when supporting their students in various task assignments and subject domains. In addition, it can tell us something about the multiplicity of everyday resources that teachers orient to in instructional work. We address this research question by analyzing in detail video data from lessons at a lower secondary school collected over one academic year. For this purpose, we employ a sociocultural approach to learning that emphasizes the dialogic relationship between cultural resources and the social construction of knowledge.

Research on contextualizing instruction

Existing research has generated valuable and important knowledge about the complex relationship between learning in school and everyday practices (Bronkhorst & Akkerman, 2016; Hogg, 2011; Rajala, Kumpulainen, Hilppö, Paananen, & Lipponen, 2016). Many scholars have argued for the potential of using everyday knowledge as a resource for learning (Lee, 2006; Moje et al., 2004; Moll, Amanti, Neff, & Gonzalez, 1992; Rivet & Krajcik, 2008). In general, these studies show the benefits of enabling students to participate in learning communities in schools in which their lives outside school are made relevant in instances of reasoning about academic content. In addition, many of these studies focus on students from diverse linguistic and cultural backgrounds. Such studies document what it means to be a learner in school cultures that prioritize only some types of identities and knowledge, and they generate important knowledge about alternative ways of designing learning environments in which diverse everyday experiences are made relevant. In this study, we do not address one specific group of students. Since mobilizing prior knowledge when learning and making meaning of content in school is described as important to all students (Bransford, 2000; Sawyer, 2014), we view the practice of contextualizing instruction as relevant on a more general level. By *everyday experiences*, we mean knowledge and experiences that are relevant and to some degree important in the communities and practices that students belong to and participate in outside school. Furthermore, in this article we take as a particular focus the ways that teachers mobilize and recruit everyday knowledge and experiences in *student-teacher interactions* that are related to academic content. In the following, we will review some of the studies that have

looked specifically into teachers and how they engage in attempts to use everyday experiences as a tool to support students' learning.

In an early intervention study, Moll and his colleagues (1992) demonstrated the potential of giving teachers the opportunity to become familiar with the practices that students engage in outside of school, in what has been termed "funds of knowledge." In this study, a group of teachers followed a group of Hispanic students to their local communities to learn about their everyday lives. The teachers learned about the complexities of the knowledge available to the students in their everyday practices and developed ideas about how they could use these as resources in their own instructional work. This study is interesting because it shows the importance of knowing about the resources of the local community if one is to create learning environments in school that support diverse student groups. In another relevant intervention study, in the context of literacy research, Lee (2006) has studied how teachers can engage students in canonical literary texts by talking and reflecting collaboratively upon "cultural data sets," which are texts and textual practices that students engage with in everyday settings. The analysis illustrates how teachers can use texts from students' everyday lives, such as rap lyrics from popular music, and can practice reasoning using these types of texts as a point of departure for reasoning about canonical literature. In this kind of instructional design, the classical roles of students and teachers are re-configured. By drawing on literary texts from youth discourses and using these as a point of departure for creating meaning from canonical texts, the teacher positions students' as the knowledgeable persons in the learning situation. In another intervention study, Dworin (2006) argues that encouraging bilingual students to write about topics that are relevant in their homes and local communities might foster learning situations in which students "become aware that their lives outside of school have meaning and importance within the classroom" (p. 518). The findings show that giving the students the opportunity to write about their home and community life in language lessons at school, as well as being encouraged to use both English and Spanish (the mother tongue) for discussing their writing projects in progress, created a supportive environment for the students. It enabled the students to participate more competently as language learners, and "the children's intellectual development was enhanced because they could use both English and Spanish for their work in this literacy project" (p. 519). The studies of Dworin (2006) and Lee (2006) are interesting in this context because they provide examples of how students can participate in literacy activities in school, such as learning about the classics of literature and learning to write, by working on artifacts that they know from participating in everyday practices.

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In a comprehensive ethnographic study, Moje and colleagues (2004) studied the occurrence of "third spaces" in students' trajectories of learning science. Third spaces are socially co-constructed spaces in which everyday discourses are mobilized in order to make meaning of content and activities carried out in formal institutional school discourses. These scholars identified four categories of everyday funds of knowledge that could potentially be used as resources for learning science. These categories were family, community, peers, and popular culture. The findings in this study show that students had a rich repertoire of everyday knowledge and experiences that were highly relevant to learning science in school. They also found that students sometimes used these funds, for example from popular culture, when interpreting and framing their understanding of subject-specific concepts. However, they did not identify many events in which teachers actively used the everyday knowledge of students in instructional strategies in the classroom as scaffolds for supporting students who were learning science.

In the fields of mathematics and social studies, scholars have also argued for using students' everyday experiences when working on curricular topics (Anderson & Gold, 2006; Boaler, 1993; Domínguez, 2011; Elbers & de Haan, 2005; Kramer-Dahl, Teo, & Chia, 2007; Nasir et al., 2008; Teo, 2008). In a study of teaching math, Anderson and Gold (2006) showed that creating bridges between the practices of the home and those of the school is not simply about integrating artifacts of the home into the classroom. It is about creating an educational, dialogic space in which the numeracy practices students' engage in at home are acknowledged and made relevant and appropriate in numeracy practices at school. In a study of teaching social studies, Teo (2008) followed a group of students that collaboratively made a food-stall advertisement (leaflet) for a school carnival. The findings showed that when the teacher was able to provide scaffolding for students in ways that enabled them, when working on the project, to use prior knowledge about carnivals and food that they had gained in everyday practices, they also composed high-quality advertisements. However, the study also showed that in order to contextualize instruction successfully, it was important for the teacher to know what knowledge resources students would see as relevant and familiar. Everyday experiences is not one thing; it can potentially be many different things.

In another study, based on data from the same data corpus as this study, Author 1 (2017) examined what function students' everyday resources can have in teachers attempts at contextualizing instruction and issues contributing to this method's successful enactment in educational dialogues. The findings show that productive use of everyday experiences for supporting student learning depends on several issues. In order to support student learning,

through the use of everyday resources, the teacher has to attend to issues such as the relevance of the resources when working on academic topics at hand, that students are enabled to bring in these resources themselves, and how the social organization of dialogue is enacted. The last point has to do with how the teachers assign roles to students in dialogues, and how they are positioned as active contributors in the ongoing co-construction of knowledge. In the current study, we extent this study and focus on what kind of everyday experiences that teachers orient to when contextualizing instruction and outline a description of these resources.

Thus, the existing body of research points to the potential of using students' everyday lives as resources for supporting them in different instructional domains. It shows that everyday knowledge and experiences can function, if used properly, as cognitive and cultural resources that might support students when they are dealing with academic content in various subjects. However, we also need more systematic knowledge about what types of resources teachers mobilize in naturally occurring classroom interaction when trying to support their students over time. We do not know very much about what types of everyday resources teachers themselves actually use in their daily teaching. For this purpose, we adopt a sociocultural approach to contextualizing instruction. This approach emphasizes how learning and knowledge are socially constructed in interactions, and how learning trajectories from different contexts can potentially intersect in the same social practices. Thus, it enables us to study how cultural tools, such as everyday experiences, might be mobilized and oriented to support student learning.

A sociocultural perspective on contextualizing instruction

From a sociocultural standpoint, learning can be described as "becoming attuned to constraints and affordances of activity and becoming more centrally involved in the practices of a community" (Greeno & the Middle School Mathematics Through Applications Project Group, 1998, p. 11). Learning is about a change in orientation to a social practice but also about becoming capable of seeing what possibilities for action exist in that practice (Mäkitalo, 2016; Rajala, Martin, & Kumpulainen, 2016). Since learning is about changing patterns of participation, instruction is about facilitating change and providing students with the right tools to realize this. Introducing new tools into learning practices transforms the activities in which the tools are enacted (Daniels, 2010). According to a sociocultural approach to instruction, the teacher should assist "children in their development by guiding their participation in relevant activities, helping them to adapt their understanding to new situations" (Rogoff, 1990, p. 191). This means that teachers need to find the right resources to support students in productive interactions (Mercer & Howe, 2012; Newman, Griffin, & Cole, 1989).

In order to fully grasp the ecology of learning in the classroom, we also need to understand how cultural tools from surrounding practices intersect and co-constitute each other in specific instructional events. Teachers need to find proper mediating tools (Wertsch, Del Rio, & Alvarez, 1995) that can function as tools to guide and support students in dealing with academic content. According to Dreier (2003), as people live their lives and participate in diverse practices, multiple learning trajectories are created. Learning trajectories are ways of dealing with issues of interest in different contexts, and they stand in particular relation to each other (Author1, 2012; Ludvigsen, Rasmussen, Krange, Moen, & Middleton, 2011). Furthermore, "learning trajectories are full of interruptions; they are discontinuous. They involve finding ways to get back to them and pick them up again at other times and places and in ways agreed upon by other involved co-participants" (Dreier, 2003: 26). This means that, for a student, co-participants are contributing to the process of creating mutual relevance between different learning trajectories. We can consider contextualizing instruction as an attempt to bring learning trajectories in school together with trajectories developed outside school, in ways that support learning in the classroom. By contextualizing instruction, one not only provides students with the opportunity to use everyday experiences as tools to inquire into curricular topics but also encourages students to make use of such resources recruited from one setting to inquiry and reason about problems in another setting (Engle, Nguyen, & Mendelson, 2011).

Everyday experiences can function as mediational means and scaffolding devices when teachers are supporting their students in academic work. In order to use these types of resources, teachers need what Lund (2006) has called "polycontextual awareness" (p. 197). This concept refers to a teacher's being attuned to the learning trajectories created in different social practices and to experiences and skills that students bring to the classroom, having gained them from participation in different social practices, when working on subject matter in curricular domains. Thus, it is about being attuned to the possibility of connecting the various learning trajectories that make up students' life trajectories. In relation to contextualizing instruction, it becomes important to ask what kinds of resources teachers use for the purpose of bringing together different practices in the process of socially constructing new knowledge in different conceptual domains. According to Myhill (2006), "adopting active pedagogic strategies to maximize participation of all pupils in whole class teaching, such as making greater use of a 'no hands up' policy, and explicitly framing questions to invite children to reflect upon or articulate their personal experiences might be a positive step to counter underachievement" (p. 39). Resources from everyday practices can be viewed as mediational means teachers can use in order to provide scaffolding for students learning about new issues and themes.

In this article, we will study what kinds of resources, drawn from the social practices that teachers view as relevant for students in everyday life, are used for the purpose of scaffolding and supporting students' engagement with academic content in the classroom. More specifically, we will look at what kinds of resources from everyday learning trajectories are mobilized as cognitive and cultural resources in learning activities. We believe it is important to categorize the potential resources that teachers use for the purpose of facilitating contextualizing instruction, because this can tell us something about what kinds of resources teachers view as relevant when trying to establish connections between different learning trajectories, and what kinds of experiences teachers see as relevant when contextualizing instruction.

Research Design

Empirical setting and method

We report on data collected at a lower secondary school in a local community called Vestlia in a medium-sized city in Norway. The data was collected as part of the research project [information removed for peer review] in which researchers investigated continuities and discontinuities in and between students' participation in practices inside and outside of school. As part of this work, we followed fifty-two students (in two classes) and four teachers in different subjects over one academic year. The students were in the ninth grade (14–15 years old).

The research design was based on the case study method (Yin, 2006). We wanted to examine what kinds of resources teachers used when contextualizing instruction in their daily instructional practices, and we had to use a strategy of collecting data that made it possible to study instructional methods as they happened during the year we observed the related practices. Since we wanted to systematically capture what kind of resources from everyday life teachers oriented to in their teaching, we decided to collect video recordings of student-teacher interactions. Video recordings captured naturally occurring interactions and enabled us to study the phenomenon under consideration as it happened in the various lessons we observed (Erickson, 2006; Heath, Hindmarsh, & Luff, 2010). Video data also gave us the opportunity to use qualitative analytical techniques and to document the types of resources teachers used when supporting students by means of this method.

During the year in which we followed the students and the teachers, we filmed 20 lessons in mathematics and 23 lessons in social studies. We wanted to document contextualizing instruction in a variety of classroom activities such as whole-class conversations, group work,

student presentations, and individual work. For obtaining high-quality video data, a camera and two microphones were used. One omnidirectional table microphone was placed in the middle of the classroom to capture whole-class conversations, and one omnidirectional wireless microphone was placed on the teacher in order to capture talk during individual and group guidance. The camera, stationed in the back of the classroom, had a wide-angle lens in order to record as many of the classroom interactions as possible. During filming, one researcher was always present. This made it possible to capture all the teacher talk that happened during each lesson, the various types of classroom activities that took place during the academic year, and the ways teachers oriented to everyday experiences as resources for scaffolding.

Analytical procedures

In order to organize and analyze the video of classroom interactions across 43 lessons, we employed thematic coding (Braun & Clarke, 2006). The software program NVivo was used for the process of identifying themes across the video corpus. A theme represents a type of pattern within the total video corpus, which are responsive to the research question that guides the analytical work. The coding and analytical process was twofold. We looked first for instructional episodes in which the teacher actually oriented toward everyday experiences as a resource, and then we looked at the kinds of resources teachers used for the purpose of supporting the students.

The following criteria were used for selecting instructional episodes to analyze in more detail: (1) The episode had to contain a sequence of student-teacher interaction. (2) The teacher had to orient to resources it is reasonable to assume has some kind of connection to the lives of the students. (3) The teacher had to explicitly use the everyday experiences of a student for the purpose of supporting a student in dealing with an academic matter. This means that episodes where the participants talked about activities that students were engaged in outside school were not included in the collection of relevant episodes unless the talk became part of work on the subject matter. As described in the introduction, by everyday experiences we mean knowledge and experiences that are relevant and to some degree important in the communities and practices that students are part of outside school. This is a broad definition, but we argue that in order to capture the variety of resources that might possibly function as scaffolding devices we had to include a wide range of resources. To what extent the resources actually are relevant to students is an empirical question. However, in order to capture contextualizing instruction as an instructional method we have decided to include episodes in which attempts of contextualizing instruction occurs. We believe that all resources that have been included in the coding processes

are resources that students to some extent relate to in their lives outside school, which are being used by the teacher as devices to support their students.

Furthermore, in the analytical work, we focus mainly on verbal references in the instructional work carried out by the teacher. This means that we look for instances in which the teachers orient to everyday experiences through talk. The teachers might also use other types of cultural resources, such as drawings, pictures and videos, which might contain references to everyday experiences. However, in this article the focus is on the instructional work as it is enacted through the use of language. In Table 1, we display two examples of utterances, in which everyday experiences are referred to, that instructional episodes have to contain in order to be included in the selection of episodes that were examined in more detail.

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Example 1:

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Teacher:       You can say that (2.1) but what are we (1.5) why isn't it a
               good thing (5.4) why should the farmer over at Vestlia start
               to cultivate opium (1.9) when he can cultivate,
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Example 2:

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Teacher:       Do you understand the word national feeling (1.0) no (0.9)
               you are from Poland (0.7) I'm from Norway (1.5) I love my
               country (0.4) you love your country (1.0) the feelings for
               the nation Norway (0.3) the feelings for the nation Poland
               (0.7) right
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Table 1. Examples of teacher utterances in which students' everyday experiences are oriented towards.

According to Erickson (2011), the "videotape itself is not 'data' – it is an information source from which data can be identified" (p. 186). When all episodes of relevance were mapped, from watching the video of all 43 lessons, all episodes were transcribed in some detail. Transcribing all episodes enabled us to go into the details of the instructional work that the teachers carried out. After transcribing the episodes, we started to analyze the teacher utterances and look at what kinds of resources teachers viewed as relevant to use when contextualizing instruction. In this part of the analysis, we primarily looked at the resources that the teachers oriented to in the different episodes. According to Lemke (1998), utterances are tightly coupled with the situation and activity in which the utterance occurs. In order to capture parts of the context of the teacher utterances, we analyzed the sequences in which they occurred. Even though we primarily examined how resources were brought into the educational dialogues through teacher

utterances, we have also paid attention to how participants are attuned to each other's contributions in dialogue, and how the participants understand the activity in which they are engaged. In this type of analysis it is possible to ascertain how specific artifacts and resources are oriented toward and become part of the meaning making activity.

After identifying the different instances of orienting to everyday experiences, we started the process of identifying patterns across the episodes and looking for possible ways of grouping the resources together. As emphasized by Derry and colleagues (2010), analyzing video data is a highly iterative process. The process of constructing the categories of teacher orientation was a time-consuming process of constantly shifting back and forth between the research question, the transcribed episodes, the video, and interpretations. This means that we had to re-construct the categories during this process. As a result, the categories of resources that finally were established were generated inductively from what actually happened in the classroom interactions. In the result section, in addition to displaying the different categories we have established, we will show examples of each category and analyze in detail how the resources are used in sequences of interaction. The signs used to transcribe extracts were taken from the classical system developed by Jefferson (2004) (see "Appendix" for transcription conventions).

Possible limitations

Organizing the resources into different categories is useful but also raises some challenges. On the one hand, trying to describe a phenomenon through establishing categories can contribute to making the phenomenon less complex than it actually is. The risk of reducing complex matter into something that is easy to handle is a challenge that should be acknowledged when constructing categories. The issue of what should be included in a category, and what should be excluded, is also a delicate matter. To what extent different aspects of a phenomenon actually belong to the same category might not always be clear. Since we do not focus on "the outcome" of the instructional episodes we analyze this type of analysis does not capture what Mercer and colleagues (2004) has called "the multi-functionality of utterances" (p. 198). On the other hand, categories can help us to structure the world around us, and tell something important about how people do things in social practices. The strength of the type of analysis we have carried out, based on detailed analysis of naturally occurring talk, is that we base our descriptions on what the interlocutors actually talk about during lessons (Mercer, 2004). The categories of everyday experiences are developed from what resources the teachers actually have oriented to in their instructional work when talking to their students. We have not studied the phenomenon under

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consideration from a pre-defined coding scheme, but from a microanalysis of teacher orientations. We believe that creating these categories based on instructional work in naturalistic settings can generate important knowledge about what types of cultural resources teachers themselves see as relevant resources when trying to support their students in different learning activities.

When constructing the categories we have tried to be sensitive to the challenges raised above and establish categories that do not overlap. However, we do not argue that the categories we have developed are the only categories existing. The categories are based on this study, and we do believe they are relevant to other settings and teachers. These categories can be helpful to educators when planning and executing instructional work that are opens for the possibility of using students' everyday experiences as resources for learning.

Results

Analysis of the total video material from one academic year reveals some major findings that will be detailed in this section. We found that the teachers did engage in attempts at scaffolding learning by orienting to everyday experiences during work on academic matter and content. This means that the teachers were to some extent oriented toward these kinds of resources when supporting their students. When analyzing what aspects of students' everyday lives outside school were mobilized by the teachers, we found that the episodes could be organized into five categories. The categories varied slightly between the subjects of social studies and mathematics. In Table 1, we display five teacher orientations and the grouping of instances according to the five categories.

Teacher orientation	Number of instances
Teachers orienting to characteristics of the local community	11
Teachers orienting to examples from everyday practices	8
Teachers orienting to personal issue	7

	Connecting to the outside
Teachers orienting to concrete objects	5
Teachers orienting to knowledge from traveling abroad	2

Table 2: Number of instances in each category

In the following, we will outline each of the five categories of teacher orientations that occurred in attempts to contextualize instruction in mathematics and social studies. We focus on the types of everyday resources that the teachers mobilize, outline a description of each category based on different episodes of interaction, and illustrate each category by providing short extracts and brief analysis of episodes from each category. This analysis enables us to show variation in the types of resources that the teachers used when contextualizing instruction.

Teachers orienting to characteristics of the local community

The first category was developed from episodes in which the teachers tried to facilitate contextualizing instruction by orienting to what seemed to be characteristics of the local community. In these episodes, the teacher oriented to the local community and used characteristics of this community as resources to support students when dealing with the academic matter at hand. This type of resource was the most frequent one. The majority of episodes in this category occurred in the social studies lessons. For example, in one episode, the infrastructure of the local community was referenced and made relevant when students were learning about the topic of transportation during earlier times. In another episode, a teacher referred to the local community in order to support students reasoning about what a diary is. In a third episode, the teacher oriented to aspects of the local community and occupations that were common to be engaged in during the nineteenth century to support a student that struggled with an assignment about occupations during this time period in Norway.

In the following, we will analyze in detail an episode of student-teacher interaction that illustrates this category. This episode, displayed in Fig. 1, occurred in a whole-class conversation taking place in a social studies lesson. The class is inquiring the so-called opium war between Great Britain and China during the nineteenth century and some of its implications for ordinary people in China. Here, the teacher tries to support the students by using characteristics of the local community of Vestlia as a resources to support the students reasoning about this topic.

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1   Teacher:    Does anyone see anything (0.3) negative about (1.1) growing
2               opium a narcotic drug (0.5) on (1.2) big flat land and
3               agricultural land? (3.2) Student 1.
4   Student 1: If there are animals nearby (0.2) and they are hungry then
5               they can eat from those plants.
6   Teacher:    You can say that (2.1) but what are we (1.5) why isn't it a
7               good thing (5.4) why should the farmer over at Vestlia start
8               to cultivate opium (1.9) when he can cultivate,
9   Student 2: Because (0.2) he makes more money on it,
10  Teacher:    He makes more money on it (1.6) but what isn't he able to
11              grow when he grows opium (1.2) which is more important than
12              opium?
13  Student 2: Other things (0.1) eh food and stuff.
14  Teacher:    Yes (1.1) so this agriculture land are then put (0.6) or used
15              to grow opium.
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Figure 1. Teachers orienting to characteristics of the local community.

In lines 1–3, the teacher tries to attune students to possible negative effects of growing opium on agricultural land. In line 4–5, we can see how a student voices a perspective about animals' well-being and the harm that can be afflicted to such creatures through the cultivation of opium. In his response, the teacher acknowledges the student's contribution, which is not wrong, but it is not these effects of growing opium that are relevant for understanding the opium war. After a lengthier pause and a lack of response from the students, the teacher uses a different strategy. He uses the community of Vestlia, and the farmers located in this community, as a point of departure for attuning the students to other effects of growing opium (lines 7–8). Toward the end of the turn taking, student 2 suggests to the rest of the class that a consequence of cultivating opium is that it occupies agricultural land that could be used to grow food for people (line 13).

In this episode, the teacher used the local community, and the farming areas in this community, as a resource for reflecting upon the possible consequences of using agricultural land to grow other things than crops that can feed the people. In this way, the teacher used this type of mediational mean as a tool for enabling students to reason about the consequences of growing opium and what the so-called opium war was about. This episode illustrates the first category of teacher orientation when contextualizing instruction.

Teachers orienting to examples from everyday practices

The second category was made of situations in which the teacher mobilized examples from everyday practices. Episodes that fell into this category included instructional situations in which the teacher oriented to and used examples from everyday practices as resources to support students when dealing with curricular topics. Even though everyday practices can be,

and often are, situated in the local community, in episodes that we grouped in this category the local community was not mentioned and the practices can be seen as more general and not specifically linked to the local community. For example, in one episode, a teacher referred to the activity of buying manufactured goods in the grocery shop as a resource to support students reasoning about aspects of industrialization. In another episode, the teacher use the example of taking the bus as a device to support a student struggling with an assignment in math.

The next example that we put forward to illustrate this category is taken from a math lesson. In this episode, displayed in Fig 2., a teacher is engaged in the activity of supporting a student who struggles with understating the function of a fee when exchanging money. The teacher starts to scaffold the student by orienting to the activity of going to a bank to exchange money.

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1     Student:    I don't know what to do?
2     Teacher:    No:: let's try to find it out (starts to make slips of
3                 paper that illustrates money)) (1.3) now I'm at the bank
4                 (0.4) I'm at the bank here you are here is (0.2) Euro
5                 (4.5) ((gives slips of papers to the student)) I arrive
6                 at the bank and then I say yes thank you I would like to
7                 buy 720 Euro (4.3) how much is it?
8     Student:    20,
9     Teacher:    20 [crowns,
10    Student:       [No,
11    Teacher:    20 crowns (0.2) for 720 Euro (1.1) how much
12                does [it cost,
13    Student:         [It cost 5748,
14    Teacher:    Mm (1.1) here you are (1.1) and does the fee cost
15                anything or do I have to [pay?
16    Student:                             [20 crowns.
17    Teacher:    I have to pay 20 right 20 crowns here you are here is the
18                money for the fee (0.4) how much is that in total?
19    Student:    Plus that,
20    Teacher:    Mm,
21    Student:    Oh yeah?
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Figure 2. Teachers orienting to examples from everyday practices.

As seen in line 1, a student is struggling with understanding the assignment. As a response to this frustration, the teacher starts to build an example of going to the bank to exchange money. She makes small slips of paper that are supposed to illustrate money, and tries to start some kind of role play in which the students can understand the function of a fee and how to include it in her calculations. When the teacher ask the student to calculate how much she has to pay for 720 Euro, the student responds 20 crowns. When the teacher repeats the amount suggested by the student, which is wrong, the student withdraw her suggestion (line 10). When the teacher

once more repeats it (lines 11-12), the student utters the correct amount when converting 720 Euro to Norwegian crowns. When the teacher acknowledge that this is the correct amount she also prompts the student to include the fee in her calculations (line 14-15). The episode ends when the student are enabled to see the relation between the fee and the converted amount, and that you have to add together these units in order to solve the assignment.

In this episode, the teacher oriented to the everyday practices of going to the bank. She used this as an example to support a student struggling with understanding how to deal with an assignment about exchanging money from one currency to another. Here, by orienting to the practices of going to the bank the teacher enabled to student to understand the function of a fee in these kinds of transactions, and how to include it in her calculations. This episode illustrates the second category of teacher orientation when contextualizing instruction.

Teachers orienting to personal issue

This category emerged from episodes in which teachers mobilized what we have called personal issues as resources for supporting student reasoning. The majority of such episodes occurred during social studies lessons. In contrast to the second category, which was about more general everyday practices, episodes in this category contains teacher orientations in which teachers mobilizes resources that are connected to the more personal level of students everyday experiences. Here, important ingredients of being a youth and aspects of students' personal lives, interests and emotions are made relevant as resources to support student's reasoning about subject matter. For instance, in one episode of whole-class interaction, a teacher used students' emotional experience of being in love as a resource for approaching the concept of national romanticism. Other resources that belong to this category are experiences connected to cultural backgrounds, parents, and home life. For instance, one teacher referred to how parents at home might deal with politics and political issues in order to make their students relate to an upcoming political election at the school. Another teacher referred to the occupations of the students' parents in order to address the question of whether or not there is a working class in Norway today. We also observed how teachers used student experiences from participation in popular leisure activities, such as sports, as a tool for guiding students in their assignments.

The third episode we analyze in detail, displayed in Fig. 3, illustrates how a teacher tried to contextualize instruction by referring to students' cultural backgrounds and identities. In this episode, the students were learning about national romanticism and the concept of national feeling. The activity was organized as group work, and the teacher was making rounds. Two students of non-Norwegian ethnic origin (Polish and Estonian), who at times struggled with the

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Norwegian language, had been placed at a desk next to each other. When the episode occurred, the teacher came up to the girls to check how they were coping with the assignment and started to talk to the student originally from Poland.

```
1   Teacher:    Eh (0.1) now this is (0.1) this has a lot to do about
2               concepts and to understand concepts but,
3   Student:    M:m.
4   Teacher:    So (1.5) if we now (0.4) here it says the Norwegian national
5               feeling.
6   Student:    M:m.
7   Teacher:    Yes (0.2) what what does it mean to be Norwegian.
8   Student:    M:m.
9   Teacher:    In the nineteenth century (0.1) we are done with (0.1) the
10              constitutional law in 1814 and (0.3) we wanted an independent
11              nation,
12  Student:    Mm (1.9) so i::s it actually:: that we are going to write
13              about all [these concepts:: what was it like to.
14  Teacher:                [Yes (0.2) and (0.2) how Norwegians yes (0.4) and
15                           yes how (0.3) and (0.3) I think it is (0.2) good
16                           to write down cues.
17  Student:    M:m,
18  Teacher:    Do you understand the word national feeling (1.0) no (0.9)
19              you are from Poland (0.7) I'm from Norway (1.5) I love my
20              country (0.4) you love your country (1.0) the feelings for
21              the nation Norway (0.3) the feelings for the nation Poland
22              (0.7) right,
23  Student:    °Yes°
24  Teacher:    Yes (0.5) and in the nineteenth century (0.2) then Norway got
25              (2.2) they started to reflect upon what is the (0.4) very
26              Norwegian? (0.6) and in the book this is to some extent
27              described (0.6) perhaps you can (0.2) read a little bit and
28              (0.2) find it out.
29  Student:    M:m.
```

Figure 3. Teachers orienting to personal issue.

In the opening of the episode, the teacher orients the student to the meaning of the concepts they are working on. He tries to help the student understand what she is supposed to do during this classroom activity. During the initial rounds of turn taking, the student only utters "M:m", but then, in lines 12–13, she formulates an account of what she is supposed to do, which is acknowledged by the teacher (lines 14–15). When the teacher assumes that the student does not know the meaning of the term "national feeling," he starts to orient her to the place of origin of both the student and himself (lines 18–22). He then uses her ethnic origin and his own as resources for explaining the concept of national feeling. He uses such expressions as "you are from Poland," "I'm from Norway," "I love my country," and "you love your country," and focuses on how they both have special relations to their country of origin. When the student

confirms the teacher's account (line 23), the teacher states that she is now ready to continue to work on the assignment.

This educational dialogue is a clear example of the third category. In this episode, a student's identity was used as a resource for scaffolding her work on an assignment. The teacher referred to the student's background and country of origin (Poland) and her personal experiences and feelings for this country and used this as a resource for reflecting upon national romanticism and what the concept of national feeling means.

Teachers orienting to concrete objects

The next category emerging from the analysis of classroom interactions was developed from episodes in which teachers oriented to concrete objects as resources for supporting students' meaning making and learning. These types of episodes only occurred in mathematics lessons. We observed that teachers used concrete objects that students were familiar with from outside school as representations and illustrations of more abstract concepts. In these episodes, items like money, animals, and fruit were used as concrete objects that represented abstract symbols in mathematical problems that students worked on. Such objects were used as resources when students were struggling with academic problems. For instance, in one episode a teacher used money in order to provide scaffolding to a student who faced challenges with understanding that a number divided by a smaller number had to be a negative number.

One case illustrates this category in detail. This episode, displayed in Figure 4, occurred during individual work. It shows how a concrete object can be used as a scaffolding device. The class was working on the topic of algebra in mathematics, and the students were sitting at their desks and calculating different mathematical assignments from their book. One of the students was struggling with a task, and the teacher approached this student and started to guide her by mobilizing fruits as resources to support the student.

```
1   Teacher:   What does the expression 5 times a plus b means, [5xa+b]
2   Student:   <5 times a plus this>,
3   Teacher:   If for example::,
4   Student:   Won't that just be won't that just be,
5   Teacher:   Monkeys (0.9) no pineapples (0.7) and bananas (1.7) it means
6              that it's both 5 pineapples (0.3) and 5 bananas.
7   Student:   That is 10 (0.2) a:: (0.2) b,
8   Teacher:   10 fruits.
9   Student:   Ok so [its this?
10  Teacher:        [Not 10 a b (0.3) but its 5 a (0.3) plus 5 b.
11  Student:   Oh yes?
12  Teacher:   Mm.
13  Student:   Then I get it.
```

Figure 4. Teachers orienting to concrete objects.

When the teacher orients the student to the expression 5 x a + b (line 1), the student has trouble explaining what it actually means (line 2 and 4). Then, the teacher starts to refer to concrete objects. He uses objects such as pineapples and bananas as replacements for the abstract symbols *a* and *b* (lines 5–6). This strategy seems to be something that the teacher does in order to make the task more concrete and easier to deal with. By converting abstract numbers and letters into pineapples and bananas, and by using these objects as tools for guiding the students, the teacher tries to make the expression more concrete and understandable for the student. After several turns, the student displays that she is now able to understand this type of expression and is ready to continue to work on the mathematical assignment on her own (line 13).

This episode illustrates the forth category of everyday experiences that the teachers oriented to in attempts of contextualizing instruction. The teacher used objects that he assumed the students were familiar with, such as fruits, as tools for supporting a struggling student who had challenges in dealing with calculating a mathematical problem.

Teacher orienting to knowledge from traveling abroad
The final category is made of instances in which the teachers orients to knowledge that students have gained from traveling to other countries as a resource. We identified two instances in which the teachers mobilized such resources. In the first episode, taking place in a math lesson, the teacher used the example of travelling to Turkey, a popular destination for Norwegians to visit during the holidays, and buying clothes as a resource for dealing with assignments that included converting currencies. The second episode, we will analyze in detail below. This episode occurred during a lesson about historical developments in the world, in which students are dealing with the topic of imperialism. During the lesson, the class address the role of Great Britain during these times, and Australia becomes an issues. The fact that the main language in Australia is English illustrates aspects of imperialism and settlement. This episode, displayed in Figure 5, occurs during a whole-class conversation. A map over the world is pulled down in front of the black board, and the teacher prompt the students to explain where Australia is located.

```
1   Student 1: There. ((points at Australia on the map))
2   Teacher:   There is Australia (2.2) ok (4.4) has someone been there?
3              ((Student 2 raises his hand))
4   Teacher:   Student 2 has been there (0.7) what kind of language do they
5              speak.
```

```
6    Student 2: English,
7    Teacher:   English (1.1) how come,
8               ((Student 2 and 3 raises their hands))
9    Teacher:   Student 3 is now very eager (1.3) raising his hand all the
10              time.
11   Student 3: Yes,
12   Teacher:   Student 4,
13   Student 4: I am not to::tally sure bu::t I belie::ve that:: (0.4) wasn't
14              it like something that the::y (0.7) they sent prisoners down
15              to Australia,
16   Teacher:   Yes.
17   Student 4: So,
18   Teacher:   Yes why is (0.1) but just in a nutshell why is there English
19              language in Australia (1.2) Student 3,
20   Student 3: Because the British had colonies there earlier,
21   Teacher:   Because (0.2) the British (0.6) settled in Australia,
```

Figure 5. Teacher orienting to knowledge from traveling abroad.

When the location of Australia is identified (line 1), the teacher asks if any of the students have been there, inviting the students to bring in relevant knowledge. After the teacher recognizes that Student 2 has been to Australia (line 4), it becomes clear that he wants those students who have been to Australia to provide the class with knowledge regarding a specific aspect of this country, namely what the primary language is (line 4-5). When the teacher nominates Student 2 (line 6), the student provides his peers with knowledge about the issue under consideration, knowledge that he has gained from travelling abroad. The teacher picks up on Student 2's contribution and uses it as a resource for going further into the subject matter (line 7). By posing the question of why exactly Australians speak English, he implies that this condition is not incidentally, but instead has a particular reason that is relevant in the context of imperialism. After a couple of turns the teacher nominates Student 3, who in his response orients the discussion to the process of colonization and explains that the reason for the language situation is that the British settled in Australia.

In sum, the teacher mobilizes students' experiences from travelling abroad as a resource for student learning. The teacher invited the students to contribute with knowledge gained from traveling abroad as relevant to the discussion about the topic under consideration. In addition, the teacher uses a student's experience with language use in Australia as a resource for facilitating reflection about the consequences of imperialism and what impact the process of colonization and settlement has had on different parts of the world. This episode illustrates the final category of teacher orientation when contextualizing instruction.

6 Discussion and concluding remarks

In this article, we have examined the kinds of everyday experiences teachers orient to in classroom interactions when contextualizing instruction. We have shed light on the research question, which asked what kinds of resources teachers use when enacting this method of instruction. By reviewing and analyzing a large amount of video that captured naturally occurring classroom interaction over one academic year, we have identified everyday resources that teachers themselves orient to in order to support their students.

The findings show that the teachers we followed attempted to contextualize instruction in classroom interactions in many of the lessons we observed. Contextualizing instruction did not occur in every lesson, but in some lessons, it occurred several times. By analyzing the episodes of student-teacher interactions in which teachers used everyday experiences as scaffolding devices, we identified five categories of teacher orientations to resources. We have called these (1) Teachers orienting to characteristics of the local community, (2) Teachers orienting to examples from everyday practices, (3) Teachers orienting to personal issue, (4) Teachers orienting to concrete objects and (5) Teachers orienting to knowledge from traveling abroad. The most frequently occurring type is the first category, and most of these episodes occurred in social studies lessons. The most frequent type in the subject of mathematics was concrete objects.

In one of the classical studies of everyday experiences in educational contexts, Moje et al. (2004) found that students came to school with many experiences and knowledge that were highly relevant for learning material in class, but that these resources were not made relevant in the instructional work. Our data show that contextualizing instruction happened almost one time per lesson. This means that the teachers we followed practice some kind of polycontextual awareness (Lund, 2006). The teachers were attuned to the possibility of using students' everyday experiences as mediational means for providing scaffolding to students working on various topics, and they mobilized resources from diverse learning trajectories that are part of practices outside school for learning purposes in classrooms (Dreier, 2003). Existing research has shown the positive effects of drawing on students' everyday experiences when providing scaffolding for students in learning and understanding subject matter in class (Dworin, 2006; Lee, 2006; Moll et al., 1992; Nasir et al., 2008; Warren, Ballenger, Ogonowski, Rosebery, & Hudicourt-Barnes, 2001). The current study adds to this body of knowledge. The categories point to the possibility of using resources that are quite diverse in nature as scaffolding devices in instructional trajectories, and that using resources that relate to the aspects that we have documented here, can enable teachers to engage in contextualizing instruction.

Furthermore, Teo (2008) emphasized in his study that it is important that the teacher knows what resources students will see as relevant and familiar, and that everyday resources can potentially be many different things. Our study adds to these insights. The rationale behind establishing categories of what kind of everyday resources teachers orient to in their instructional work is that it can generate important knowledge about what kinds of cultural tools teachers themselves consider relevant when mobilizing everyday experiences as scaffolding devices, and the variation and multiplicity of such resources in classroom interactions. In comparing the four categories developed in this study to the categories that Moje et al. (2004) identified—family, community, peers, and popular culture—we find some similarities and differences. Family, community, and peers are related to our categories. For example, our teachers often referred to the local community of the students when trying to support them. The reason for the high frequency of resources connected to the local community might be because teachers are more familiar with the characteristics of this community that mean something for both young people and adults. That local community occurred mostly in social studies might indicate that teachers find it easier and more relevant to use characteristics of the community when supporting student's engagement with academic content in this subject.

The fact that examples of everyday practices and concrete objects were the most common mediational means used in math might indicate that teachers see everyday activities, such as going to the bank or buying ice cream, and objects that they assume students are familiar with, such as oranges and apples, as easier and more relevant to use as examples when approaching mathematical problems. This does not mean that resources of more personal character cannot be used as scaffolding devices in mathematics. On the contrary, aspects of being young and personal interests of young people might be highly suitable to support students in instructional work. We only found one reference to popular culture, which is a main category in the study of Moje and colleagues (2004). Even though this was a little bit surprising, since popular culture is an important component of youth life, it might indicate that some teachers find it difficult to relate to the popular cultural universe of young people when dealing with academic content. Mobilizing resources from this universe that actually is relevant to students, and to use it properly as a resources to inquiring into subject matter in school, might be challenging for some teachers.

Moreover, a crucial difference between our study and that of Moje and her colleagues is that they developed the categories from the kinds of knowledge funds students themselves came to school with. Thus, the categories were developed with the students as the point of departure. In our study, we developed the categories from the resources teachers themselves

mobilized as mediational means. The teachers tried to create learning situations in which there was an alignment between the resources that were mobilized by the teacher and the background and interests of the students. Thus, an understanding of the kinds of resources that are viewed as relevant was created in a dialogical relationship between the teachers and the students. In another study based on the same data as the current study, Author 1 (2017) showed that productive use of everyday experiences for supporting student learning depends on the relevance of the resources when working on academic topics at hand, that students are enabled to bring in these resources themselves, and students are positioned as active contributors in the ongoing co-construction of knowledge. The finding of the current study should be viewed in light of this. The teacher orientations to different kinds of everyday resources does not automatically lead to productive learning situations. In looking at the extracts illustrating attempts to facilitate contextualizing instruction (Fig. 1–5), it is not always clear in what ways the use of these resources actually supports students' learning and understanding of subject matter. The implications of the findings point to a need for teachers to plan the use of resources from different types of activities and to use such resources more systematically. It is not always clear what the uptake of students is nor how these resources actually enable students to enhance their understanding and gain insights into the academic topic they are dealing with. However, from a sociocultural viewpoint, learning involves the process of being attuned to how to orient oneself toward various cultural resources that exist in social practices (Mäkitalo, 2016; Rajala, Martin, & Kumpulainen, 2016). This means that when students participate in classroom communities over time, they will also learn what kinds of mediational means are preferred when thinking and reflecting upon curricular topics and subject matter. Contextualizing instruction is not only about facilitating conceptual understanding per se but also about encouraging students to use the resources they come to school with as mediating tools to reason with and, through this, engage in what Dewey (1959) called "a continuing reconstruction of experience" (p. 27). Thus, contextualizing instruction is not only about the technical method of providing support at a particular moment of time; it can also be viewed as a way of approaching students' everyday lives as resources that can build connections between the multiple practices that students traverse in contemporary societies (Anderson and Gold, 2006).

Future research on contextualizing instruction needs to address how everyday experiences can be used effectively and soundly, in ways that are meaningful for both teachers and students. The categories identified here from naturally occurring classroom interaction can guide educators in the process of developing strategies that can contribute to making content within subject domains more comprehensible for both struggling and non-struggling students.

Knowledge about these aspects of teaching and learning in classrooms is important because it can guide us in future attempts to create learning environments in which teachers can scaffold students' participation in ways that include resources from the students' everyday lives outside of school in a systematic way.

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Appendix: Transcription Conventions

Sign	*Explanation*
(2.5)	Time interval between speech in tenths of a second.
< > or	Right and left carats indicate that the talk between the participants speeded up slowed down.
<u>word</u>	Underlining indicates emphasis on words and expressions.
[	Brackets indicate where overlapping talk starts.
:::	Colons indicate the lengthening of a word or sound.
. , ?	Punctuation markers indicates intonation. The period indicates falling intonation. The comma and question-mark indicate rising intonation.
( )	Empty parentheses indicate that it was difficult to hear what was said.
°word°	Indicates that the word or sound is softer compared to the surrounding talk.
((looks up))	A sentence that appears within double parentheses describes an action.