Expanding the Context of Pedagogical Activity to the Surrounding Communities

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Connecting learning across school and out-of-school contexts is a growing concern in educational research and practice. In this paper, I present and discuss two pedagogical principles for expanding the context of pedagogical activity by connecting it to the students' lives and communities. The pedagogical principles discussed in this paper are a) connecting pedagogical activity to activity systems and expert communities outside school and b) harnessing students' productive deviations from a given pedagogical design. The argument foregrounds the distinction between the extension and expansion of the context of pedagogical activity. The context of pedagogical activity is expanded when the interaction with the outside world qualitatively changes the activity. I draw upon a sociocultural and holistic conceptualization of pedagogy that considers pedagogy as cultural intervention in human development that occurs in encounters between students' and teachers' activities, situated in the cultural, historical, and institutional contexts of school and beyond. In the concluding section, I discuss a sketch for a new pedagogy based on the pedagogical principles elaborated in this paper.

Connecting learning across school and out-of-school contexts is a growing concern in educational research and practice (Rajala, Kumpulainen, Paananen, Hilppö, & Lipponen, 2016a; Bronkhorst & Akkerman, 2016). This concern reflects changing societal demands for schooling, stemming from private, public, and working lives in contemporary societies. There are a number of challenges that schools need to deal with. Young people appear less committed to school learning than previous generations, and many are investing their energies in other contexts (Säljö, 2004; Salmela-Aro et al., 2016). It is a challenge for schools to help the students to develop connections between what they learn in school and what they learn in more informal settings (see also Barron, 2006; Ito et al., 2013). Schools are also recognizing the need to revise and update their pedagogical approaches to prepare students to tackle more complex and contested problems of working and civic life than before (Zeidler & Nichols, 2009; Dumont, Istance, & Benavides, 2010). To address these challenges, schools are increasingly considering how to connect pedagogical activity to the surrounding society and communities better (Erstad et al., 2016; Bronkhorst & Akkerman, 2016).

These concerns also echo theoretical developments in understanding the relationship between learning and its context (e.g., Cole, 1996; Engeström, 2009). For example, researchers of informal learning have argued for the need to broaden the canonical definitions of how learning is conceived in different school subjects. They have characterized learning in school as the individual and decontextualized manipulation of symbols, in contrast to the socially shared and contextualized reasoning occurring in out-of-school settings (Resnick, 1987; Bevan, Bell, Stevens, & Razfar, 2013). Research has also focused on the conditions for supporting continuity in learning across school and non-school contexts. This research has unpacked complex interactions of the students that account for the achievement of continuity across various contexts of the students' learning ecologies (Barron, 2006; Phelan et al., 1991; Roth & Erstad,

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2016; Marsico, Komatsu, & Iannaccone, 2013). Although the origin of these insights dates back more than a century (Dewey, 1915; Whitehead, 1929; Vygotsky, 1926/1997; Freire, 1970), in recent years they have gained considerable currency among educational researchers and practitioners (Bronkhorst & Akkerman, 2016; Rajala et al., 2016a).

In this paper, I discuss pedagogical principles for expanding the context of pedagogical activity by connecting it to the students' lives and communities. By "expansion of the context of pedagogical activity", I refer to a mutually transformative boundary crossing between the pedagogical activity and social activity outside school (Rajala, 2016; see also, Akkerman & Bakker, 2011). An expansion involves a qualitative change of the activity and is distinguished from a mere extension that does not significantly change the nature of the activity (see also Engeström et al., 2003). To this end, I draw upon a sociocultural and holistic conceptualization of pedagogy that considers pedagogy as cultural intervention in human development that occurs in encounters between students' and teachers' activities, situated in the cultural, historical, and institutional contexts of school and beyond (Rajala et al., 2016a; Alexander, 2008; Daniels, 2007).

In what follows, I first outline the theoretical framework that underpins the argument of this paper. After that, I present and discuss two pedagogical principles for expanding the context of pedagogical activity, drawing upon and synthesizing some findings from my previous studies. The pedagogical insights discussed in this paper were originally introduced by Rajala (2016), and in this paper, they will be further elaborated and refined. I also analyze and discuss illustrative and contrastive examples from empirical data. I conclude the paper by discussing broader pedagogical implications and avenues for further research.

THEORETICAL FRAMEWORK

My argument is informed by a sociocultural and activity-theoretical perspective on learning and education (Rajala, 2016; Engeström, 2015). Specifically, learning is viewed as an integral aspect of living in various formal and informal sociocultural contexts that together comprise an individual's learning ecology (Barron, 2006). I also contend that learning is a contested endeavor; what counts as knowledge and whose knowledge counts is negotiated in local contexts and social interactions. Thus, the focus is on how individuals participate in both reproducing and transforming the norms, discourses, and forms of activity of their communities (Kumpulainen & Renshaw, 2007; Engeström, 2011).

Pedagogical activity is defined in this paper as a relatively durable object-oriented social formation that is realized through situated actions and interactions and mediated by material and conceptual tools, the division of labor, community, and rules (Engeström, 2015; Engeström, Rantavuori, & Kerosuo, 2013). Actions are shorter-term instantiations of an activity aimed at goals that the actors usually are able to articulate. The object of a given activity defines its purpose and the horizon of possible actions. The object also distinguishes one activity from another and gives an activity its meaning and sense for the participants (Leontiev, 1978, 1981). The object of pedagogical activity is often the written or verbal school text, embedded in worksheets, textbooks, and classroom discourse. By way of contrast, the everyday problems and phenomena from the students' lifeworlds or the wider society seldom energize and direct pedagogical activity (Leander, 2002). The students have more scope for acting and exercising active citizenship if the object of activity is to create products that have value outside the

pedagogical context, the creation of which involves generative use of conceptual knowledge (see also Greeno & Engeström, 2014; Rajala, 2016).

The notion of context that informs this paper involves the idea that human activity creates its own context (Cole, 1996; Engeström, 2009). The context of an activity is a dynamic process realized by means of actions and interactions that selectively incorporate the immediate physical setting and its objects as well as spatially and temporally more distal events as relevant and consequential for the ongoing activity. For example, in a telephone call, the immediate setting is usually less relevant than other, more distal settings and situations invoked discursively by the interlocutors (see also Mercer, 2000). In a school context, when students pass notes to each other while the teacher is not watching, they are effectively changing the context of their actions from school work to a leisure activity, without physically leaving the classroom. Similarly, when during an outdoor fieldtrip, the class stops in front of a field to engage in an abstract discussion in response to the teacher's questions of what birds they should see in that kind of a field, drawing upon the knowledge acquired in the classroom, raising their hands to ask permission to talk, they are reproducing a classroom context in nature (Rajala & Akkerman, 2019).

Inspired by the theory of expansive learning (Engeström, 2015), this paper discusses how the context of pedagogical activity can be expanded beyond the classroom. Expansive learning is a process of transformative actions and interactions that results in a qualitative change in how a given activity is organized. This process requires the reconceptualization of the object of the activity. The change of social practice is seen to evolve from individual actions that deviate from accepted and normative courses of conduct and gradually become the new established norm (Ilyenkov, 1982; Engeström, 1999; Engeström, Rantavuori, & Kerosuo, 2013). In particular, this paper focuses on the spatial and temporal expansion of the context. One example of such an expansion is when students' learning in school is connected to their learning, concerns, and social practices outside school (Hull & Schultz, 2001; Kumpulainen et al., 2011). By creating such connections, places and times that are meaningful for the students beyond the classroom are being made relevant and consequential for the pedagogical activity and hence are incorporated as part of its context. In other words, the idea of the context being created in and through the activity implies that school learning can be discursively expanded to the surrounding communities without physically leaving the classroom (see also Kumpulainen & Lipponen, 2010; Engle, 2006).

Overall, my argument foregrounds the distinction between the extension and expansion of the context of pedagogical activity. At its simplest, taking learning out of the classroom can mean a mere extension of pedagogical activity in space and time that does not imply any qualitative change in the activity but continues with more of the same as before, for example, when students are assigned homework. By way of contrast, the context of pedagogical activity is expanded when the interaction with the outside world qualitatively changes the activity. In the following, I discuss examples of such expansions and how they can be promoted by pedagogical means.

DESIGN PRINCIPLES FOR THE EXPANSION OF THE PEDAGOGICAL ACTIVITY

In this section, I present and discuss two design principles for expanding the context of pedagogical activity to the students' lives and communities outside school:

- Connecting pedagogical activity to activity systems and expert communities outside school

- Harnessing students' productive deviations as a means to expand the context of pedagogical activity

Connecting Pedagogical Activity to Activity Systems and Expert Communities outside School

First, I argue that providing opportunities for students to contribute to concrete and communal activity outside school and working on complex and current problems that have wider relevance can have a powerful role in restructuring pedagogical activity.

I illuminate and discuss this pedagogical principle by building on the findings of a study I conducted with my colleagues (Rajala, Hilppö, Kumpulainen & Lipponen, 2013). The study examined an innovative elective project in a Finnish upper secondary school, named Bicycles on the Move! In the project, the students cooperated with cycling activists and city authorities to influence the decision-making of the City Council concerning cycling (see Figure 1). The course involved the use of an interactive digital map in which the students added photographs of their cycling experiences, details of places where cycling conditions needed improvement, and suggestions for new or alternative cycling routes. These photographs then provided opportunities for sharing experiences and observations when they were discussed in the classroom (see Figure 2).

The data were collected by observing and video-recording pedagogical activity in the classroom and by interviewing the students and the teachers. The data collection was originally conducted as part of an evaluation study for the The Organisation for Economic Co-operation and Development (OECD; for details, see Rajala, Mikkola, Thurnberg, & Kumpulainen, 2011). One lesson (45 minutes) was recorded on video. Furthermore, a semi-structured focus interview was conducted separately with six students and for the two teachers after the lesson. The interviews were recorded on either video or audiotape. In addition, we collected various documents relating to the project, such as a public talk, newspaper articles, and a television program. The interpretive analysis of the data focused on how temporality and spatiality were produced in the pedagogical activity and negotiated in the classroom interactions.

The following excerpt (reproduced from Rajala et al., 2013) exemplifies a typical task in the Bicycles on the Move! project. The teacher introduces the students to an assignment relating to construction of a new pedestrian and bicycle path near the school as part of a city plan. To accomplish the task, the students took photographs of problems for cyclists in the neighborhood.

EXCERPT 1

> *Teacher: The most urgent issue would be . . . right now they [the city authorities] are really starting to ponder and think about . . . whether Tapiolan Raitti is a functional main route for cyclists or whether it should be arranged in some other way . . . It is likely that we'll get an audience with the big bosses in January, so before that we should have something of an idea and we should have already checked every corner there and we should have an idea. So, would you possibly feel up to going through those corners, especially from the Sokos Hotel heading East, and think about it? What would be a functional route?*

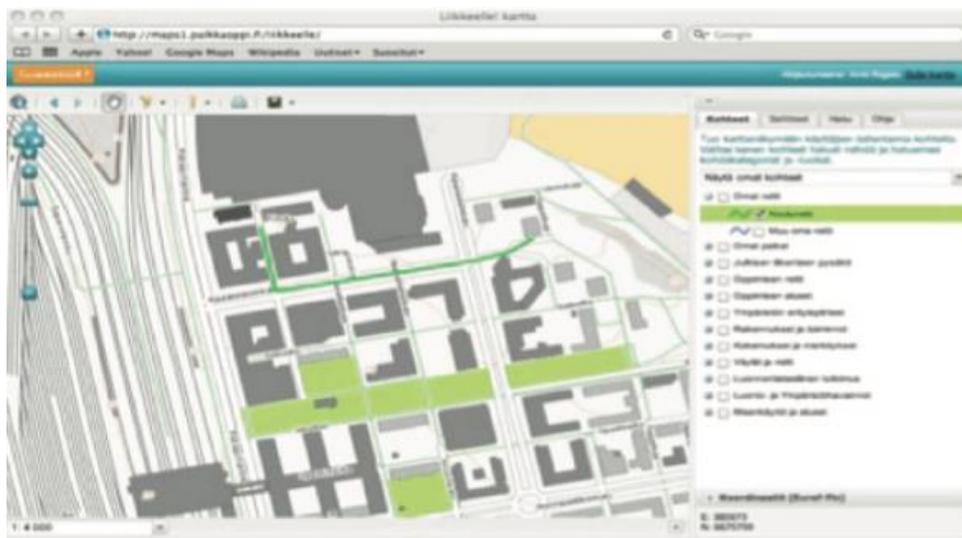Figure 1: Students negotiating with city authorities at Tapiola Info Center.

Figure 2: The interactive virtual map in use in the Bicycles on the Move!, (c) MML, permission number 53/MML/11

In the example, the teacher creates a sense of a broader audience for the students' contributions. It is not only the teachers who the students needed to convince but also the city authorities who were planning the cycle routes of the area. In particular, the teacher reminds the students that they are going to meet a top city official. The teacher tells the students the planned construction project might make the city official interested in the students' observations. Overall, in the Bicycles on the Move! project, the students' contributions were addressed not only to their teachers, but also to a broader audience, such as city officials, cycling activists, newspaper readers when co-authoring opinion pieces with their teachers or current and future citizens living in the area. Thus, the feasibility of the students' contributions was connected to multiple non-school activity systems, and their rhythms (e.g., the timelines for

decision making of city authorities) and criteria for valid contributions. Moreover, the students, together with their teachers, contributed to the local political debates by questioning assumptions and decisions about local cycling conditions. Thus, the surrounding communities and their social practices were not only regarded as places where students could visit, make observations and learn expert knowledge. Instead the project provided the students with opportunities for exercising political influence and active citizenship as they were positioned as accountable authors who could contribute to the transformation of the social practices beyond school.

In all, this example shows how the expansion of the context of pedagogical activity can result from a pedagogical design and its realization in cooperation with the students. The new object of instruction, which involved influencing local political decision-making, appeared to give an entirely new sense to the pedagogical contents and procedures. In addition, in the course of working on problems that had relevance outside school, the relationships between the students and the teachers were renegotiated, and new, mutually transformative relationships were forged with stakeholders and activity systems situated outside school.

Harnessing Students' Productive Deviations as a Means to Expand the Context of Pedagogical Activity

Second, the expansion of the context of pedagogical activity to the surrounding communities can also be initiated by students. In particular, I discuss how what I call students' *productive deviations* from the teacher's intended pedagogical design and assignments can help to trigger such expansion. We coined the concept of productive deviations with my colleague Annalisa Sannino in our study of primary school peer interactions (Rajala & Sannino, 2015), to account for interactions in which the students' deviating actions are taken up and elaborated by the teacher and/or the peers to enrich and expand the meaning-making. We found that students' deviations provided opportunities for them to connect their school learning to their concerns and interests developed outside school.

Figure 3: Class discussions in the project on stones and rocks

To illustrate my argument, I build on the analyses of two previous studies, which I conducted with my colleagues (Rajala & Sannino, 2015; Rajala et al., 2016b). The data for the studies were collected during 2008 from two primary school, whole-semester inquiry learning projects in which I worked as the teacher. In both projects, as the teacher, I sought to promote students' agency in collective meaning making and knowledge creation. To this end, I designed the pedagogical activity to create opportunities for students to build on their interests, experiences, and local knowledge. I had been influenced by dialogic approaches to teaching, and tried to promote reasoned dialogue among the students.

The video data from the classroom interactions during the projects were collected using two video cameras. Moreover, worksheets and textbooks were collected and analyzed as a secondary data source when relevant to interpret the video data. The talk and nonverbal interactions were analyzed with interaction analysis (Jordan & Henderson, 1995). In one of the studies (Rajala & Sannino, 2015), our analysis focused on the students' deviations from the assigned task in small group work. Deviations from the assigned task were defined as actions and interactions that interfered or conflicted with the students' work on the task or that diverted from straightforward adherence to the assigned task. In the other study (Rajala et al., 2016b), our analysis focused on students' oppositional interactions in whole class discussions. Oppositional interactions are a form of deviation and accounted for student initiatives that questioned or were in opposition to the teacher or some aspects of the pedagogical activity.

The following excerpt (reproduced from Rajala et al., 2016b) illustrates how an expansion of the context of pedagogical activity resulted from a students' oppositional initiative, when the teacher responded to it by creating a space for collective negotiation of meaning (see Figure 3). In the excerpt, the class explored a statement made by the guide in the Museum of Technology during a museum visit. The guide had informed the class that money is made from wool and not from paper. One of the students, Roope, noted to the teacher that the statement contradicted the students' prior knowledge, and the teacher asked him to lead a discussion on the matter.

EXCERPT 2 (March 4, 2008)

1 Roope: Yeah, when we were there at the Museum of Technology, that museum lecturer told us that paper- that they don't, they don't use paper to make money but make it out of wool.
2 Teacher: Okay, Roope is the chair now, does somebody want to comment?
3 Saara: Well I just don't believe that.
4 Teacher: Put up your hand, and Roope will recognize each one in turn.
5 Roope: Saara
6 Saara: I'm telling you, whatever- scientific thing that is, I don't believe it.
7 Teacher: Okay, does anybody else want to comment?
8 Roope: Kimmo
9 Kimmo: Yes, that can be true. If they put it in some kind of machine, then the machine will make them.
10 Roope: Yeah, it's just like that. You can actually see if you look real close, you can see a bit of that sort of thing.
11 Kimmo: Exactly
12 Roope: Aaro
13 Aaro: Well, I think they make it, well, maybe out of wool, I'm not sure
14 Saara: I don't believe it, whoever the guide is.
15 Roope: Kimmo

16 Kimmo: They use some kind of machine to make it. Just like they make money with a machine.
17 Roope: Well at least it's the same type, like, they sort of make it out of wool, it's like, it's not like, all paper.
18 Teacher: I have an idea.
19 Roope: Yes teacher.
20 Teacher: Well I was just thinking, perhaps somebody could suggest why they might make it out of wool and not paper, though it would be so easy to make it out of paper with a copying machine? (Roope raises his hand to answer the teacher's question.)
21 Kimmo: Roope, you're the chair.
22 Roope: Yeah, I know. Well it's like, more durable they say, because money circulates a real long time, I mean, you buy something at the store, you pay, and then it goes around, the store gives your money as change to somebody who then buys something with it. So, it's got to be durable.
23 Roope: Pauliina
24 Pauliina: I think maybe it's also like, because if you want to make it stronger, I mean if it was made of paper only, you could, somebody could just take a banknote and stick it in a copying machine, and then they could just copy it easy, I mean if it was paper, you could just make it quicker, it'd be real easy like, but I suppose there's no such machine you could use to make money, so you just don't-
25 Roope: Saara
26 Saara: Well I got two things to say. Can I say them both?
27 Teacher: Is it about this thing?
28 Saara: Yeah. I just don't see how money could be made of wool, I once cut in two one of those foreign bills that nobody needed. Just cut it up. And, I've cut up a Finnish banknote too, mom said I can cut just one, and I cut it, it wasn't durable at all, I also tore it up, it wasn't durable at all.
29 Roope: Well it's not like, it's not that durable, but they say paper is flimsier, so should they make money out of metal or something, so you'd need some kind of a cutter to cut it in two?
30 Saara: Still, I don't have to believe that.
31 Teacher: That's right, you don't have to believe it. But maybe if someone gives you a really good explanation, then you might want to change your mind.

In the beginning of the discussion, Roope criticized the students' initial notion that money is made from paper and referred to what the museum guide had said during the class fieldtrip. The teacher acknowledged Roope's statement, assigned him to be the chair of the discussion, and encouraged the other students to comment. Saara's questioning that followed challenged the museum guide's view (line 3: "Well I just don't believe that"; Line 6: "Whatever scientific thing that is, I don't believe it"; Line 14: "I don't believe it, whoever the guide is"; Line 30: "Still, I don't have to believe that").

Saara's questioning of the museum educator's claim also invited the other students to explore it. The teacher supported the deviation from the expected course of events by approving of Saara's questioning (e.g., line 31). The exchange of arguments and counterarguments effectively created an interactional space for the students to expand the context of the discussion to include their personal experiences and events that had occurred outside school as relevant context for the discussion. For example, Roope's response elaborated on his recurring everyday experiences in grocery stores to construct an analysis of the societal demands for the durability of banknotes (line 22). Saara's statement is another example:

> *Saara, line 28: Yes. I don't understand how they could make it out of wool, I once*
> *cut one of those foreign notes, which was useless, I cut it in half. Or then, I've cut*

> *a Finnish note, too, once, when mum said I can cut just the one, so I cut it and it wasn't durable at all, and I tore it and it wasn't durable at all.*

In defending her position, Saara shared her past personal experience and connected the contents of the task to her personal family relationships and interest-driven personal investigations at home.

The discussion that followed Saara's oppositional initiative indicates a temporary expansion of the object of the pedagogical activity. Although it was usual for the teacher in this classroom to promote discussions in which the students could share and discuss their experiences, he often framed the students' contributions in a manner that gave them only a marginal role in relation to the school-based knowledge that the students were supposed to learn through their investigation. This is illustrated with the following excerpt in which the teacher explains the value of the students' prior knowledge and personal views for the course assignment in relation to what they had learned from their fieldtrip to the Museum of Technology.

EXCERPT 3 (February 26, 2008)

> *Teacher: So, now that we have been sort of thinking of what we already know, and mind you, that might even be false information, but it's really great that you dare to bring forth your own thoughts here already. Because after you examine this thing and maybe visit the Museum of Technology like we just did, then we know a whole lot more about how paper is made. And that is research-based information too, you know, because you learned it there at the museum.*

In the teacher's statement, knowledge was taken as correct and investigation based solely on the grounds that it was told to the students in the museum. Respectively, students' own ideas were associated with incorrect knowledge and were bound to be replaced by the knowledge conveyed in authoritative knowledge sources. The investigation that had produced the knowledge acquired in the museum had already ended and the knowledge production involved was not made transparent and contestable. The students' own investigation was projected to consist of acquiring these ready-made results of past investigations. Thus, the students' capability of having their own knowledge or experiences that could compete with or enrich the explanations found from the study materials was undermined.

It is interesting to contrast the meaning of the museum guide's statement that the class was discussing in Excerpt 2 to what the museum guide reported in an interview later on. She reported in the interview that her statement about what money was made from was not based on knowledge but on impression. Actually, she had not used the word 'wool' but 'cotton'. The confusion resulted from the fact that in Finnish language, the word for cotton, "puuvilla," is categorized as one type of wool, "villa." Nevertheless, in this classroom, her impression was translated into a piece of ready-made school knowledge that the students were expected to appropriate without questions.

Although Saara's productive deviation resulted in a momentary expansion of the context of the pedagogical activity, an analysis of how the issue was later developed in the classroom interaction shows that the consequences of the expansion were limited to this specific event. This interpretation is supported by a later exchange in which the teacher recapped what the class had hitherto learned (March 12, 2018, "Yeah — we talked about the banknotes. That it

was wool, that we changed um, info — information, heard about it in the Museum of Technology."). Here, the teacher disregarded the earlier discussion in which the issue had been left open due to Saara's opposition and treated what the museum guide had said as simply true. Similarly, our analysis of the whole class discussions during the project over 17 lessons indicated that we could identify similar productive deviations but none of them resulted in an expansion beyond the situation in which the deviation took place.

Figure 4: Students' small group work in the Animal project

The following excerpt (reproduced from Rajala & Sannino, 2015) from students' peer interactions illustrates obstacles to the creation of a culture of productive deviations in a classroom. The excerpt is taken from a study of the same class as in the previous excerpt but now the students were on the fourth grade. In the study, we investigated and conceptualized the interpretive dynamics in play when students deviate from an assigned task. Our analysis focused on two students, Vilma and Samira, who worked on an inquiry learning task over seven lessons during a science education project on animals. They searched for information from the textbook to answer their selected research question, "How do animals take care of their babies?" Our interaction analysis of the video data showed that the two students interpreted the task as requiring a reproductive approach. This way of approaching the task involved mainly copying passages from the textbook onto their worksheets.

The excerpt shows how Samira deviated from their reproductive approach, to draw connections to her life and interests outside school. However, this deviation from the task was not developed into a productive deviation but instead was disregarded by Samira's peer Vilma.

EXCERPT 4

1 Vilma: The seal usually does not give birth to its first seal pup before it is four, no five, to seven years old. Do you know what a seal pup is? (Vilma points the place in the book)
2 (Samira shakes her head)

3 Vilma: It's like this or the baby seal then yeah because this is a seal pup
4 Samira: (the high pitch in her voice expresses enthusiasm) 5-7 year old like soo like like way too young
5 Vilma: well but it is like this
6 Samira: It is perhaps almost new born. When I was five, my little sister is five years and look how small she is I mean six years. Soon she will be seven but look how small she is. (Vilma reads while Samira is talking, giving only one quick glance at Samira. Samira gestures lively)
7 Vilma: Haa hhaa well
8 Samira: Well let's write it down then.
9 Vilma: No no no no no. I don't want that anymore.

The excerpt begins with Vilma first reading and explaining a passage about the age when seals give birth (lines 1-3). The passage arouses Samira's interest, and she wonders why the seals give birth at such a young age. Vilma disregarded Samira's concern and simply stated that seals are like this. Samira nevertheless continued to talk about the topic and made a comparison between the seals and herself and her little sister who is the same age (line 6). Samira indicates emotional engagement by raised pitch and lively gesturing. Here Samira is creating a connection between the task and her concerns and interests outside school and thus making these concerns and interests part of the relevant context of the students' activity.

The social interaction between Samira and Vilma, however, did not provide opportunities for the elaboration of the connections to Samira's lived experience. Vilma showed only marginal interest in what Samira said, and appeared to consider what Samira said as irrelevant (line 7). Samira proposed that they would write about seal pups, but Vilma rejected this proposal and indicated that she was not interested in seals any longer (lines 8-9). Thus, Samira's initiative to expand the context of the pedagogical activity to her personally relevant contexts outside school remained a lost opportunity.

Our analysis of the two students' social interaction while they worked with the task over seven lessons shows that the interpretive dynamics in play in the classroom supported a reproductive approach on the task. Our analysis also showed that the moments in which the students were able to expand their dominant reproductive task interpretation were not developed further or sustained. The reproductive interpretive dynamics appeared to stem partly from the teacher's lack of awareness of the institutional contextual grounding of the students' task interpretations. Despite the teacher's wish to support the students' personal sense making, the pedagogical procedures appeared mainly to have affected the surface-level of the pedagogical activity. In particular, the objective of the activity was not expanded beyond the classroom but involved solving curriculum-related problems to produce school texts, such as worksheets, posters, and answers to exams, that were subject to the evaluation by the teacher (see also Engeström, Engeström, & Suntio, 2002; Hakkarainen, 2010).

A SKETCH FOR A PEDAGOGY

In this paper I have discussed two case studies to develop a sketch for a pedagogy for expanding the context of pedagogical activity to the communities surrounding school. The following pedagogical principles, which I have elaborated in this paper, provide a starting point for such a pedagogy:
- connecting pedagogical activity to activity systems and expert communities outside school
- harnessing students' productive deviations from a given pedagogical design

These insights help to distinguish an expansion of the context of pedagogical activity from its mere extension. Extension of pedagogical activity can be defined as taking instruction to out-of-school settings or using resources developed outside school as part of instruction. However, for expansion of the context of pedagogical activity to take place, a qualitative transformation of the activity is needed. I have argued in this paper that this kind of transformation can take place through the pursuit of problems and phenomena that have relevance in the wider society outside school and through transformative encounters with non-school stakeholders and activity systems, as well as through a redefinition of what counts as knowledge and knowing by recognizing and building on students' deviant task interpretations.

The conceptualizations proposed in this paper suggest avenues for further research on the topic. Future research could, for example, investigate the dynamics between pedagogical designs for expanding the context of pedagogical activity and students' deviations from such designs. More conceptual and empirical research is needed to develop the concept of productive deviation further. Some researchers have already taken up this concept to study how learning environments that are deliberately designed to promote productive deviations can foster new opportunities for student learning and agency (Hilppö, Stevens, Jona, Echevarria, & Penney, 2016). Finally, further work is needed to enrich the sketch developed in this paper into a more integrated pedagogical model.

In conclusion, I argue that the wider society surrounding schools should be seen in terms of dynamic activity systems that have the capacity to produce the physical sites as activity contexts in varied ways. Schools are historical and institutional formations that privilege academic forms of interaction and engagement that in turn shape the ways in which students are thinking, behaving and relating to their worlds. Connecting pedagogical activity to the social activities in the surrounding communities involves a potential for a qualitative change in teaching and learning. Students, for example, can participate in citizen science to contribute to scientific endeavors in a societally meaningful manner, or publish a local history of a community through interviewing elderly people (Roth & Barton, 2004; Rajala et al., 2011; Hakkarainen, 2010). Such expansion of the object of pedagogical activity involves a potential for reorganization of the activity and including new actors — such as students' family and other community members — in the joint effort. Moreover, I conclude by arguing for the importance of creating school cultures in which students' deviations from the given assignments and pedagogical designs are not considered to be distractions, but are examined for their creative potential. Schools are only one important node in the students' overall learning ecologies that also include what the students learn in their families, hobbies, and other interest-driven engagements (Barron, 2006; Ito et al., 2013). From a student perspective, what is seen as a deviation or even a distraction from the perspective of the school can be an attempt to connect school learning to what a student is learning and is interested in elsewhere.

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