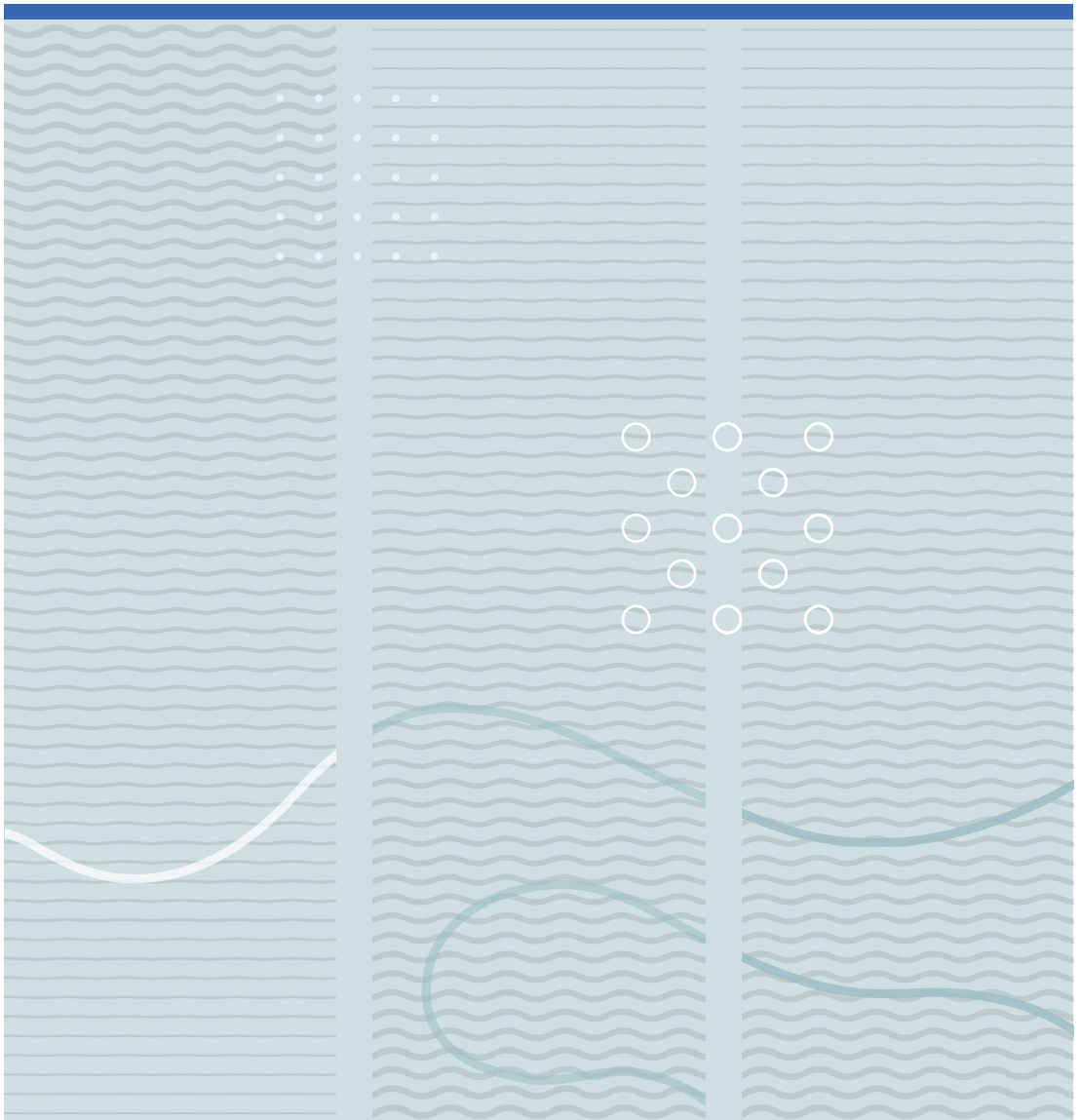


Astrid Camilla Wiig

Connecting everyday and academic learning practices, a teacher challenge?





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Connecting everyday and academic learning practices, a teacher challenge?

A PhD dissertation in

**Pedagogical Resources and Learning Processes in Kindergarten
and School**

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Dedicated my grandmother Åsta.
Who never had the opportunities to use her academic capacities and knowledge,
but always encouraged me to study hard and attain an academic education
Finally, I have a proper academic education, grandma!

Summary of the thesis

This article-based thesis presents the findings of a qualitative case study that provide a theoretically informed and empirically grounded description of regular classroom practices and how teachers anticipate and draw on the everyday and informal experiences of students as resources for academic learning.

In terms of practical policy, education in the digital age should foster the development of in-depth learning, information management, critical thinking, and the ability to apply everyday and informal experience and knowledge to solve complex and interdisciplinary problems. Making use of students' everyday and informal experiences and tools as resources for academic learning is considered a key tool in educational reforms that might enable pedagogy capable of bringing the everyday world into the classroom and contributing to an academically relevant educational practice for the 21st century. However, the review of existing international research literature in this study illustrates that teachers' attempts to incorporate students' outside experiences and knowledge into more academic learning practices typically fail to exploit students' own expertise, knowledge, and tools. When students' experiences from informal learning activities are invited into educational purposes, the discrepancies in the views of learning (i.e., what is considered relevant or accountable) and the goals of the different disciplinary practices implicitly lead to tensions and practical challenges. This contradiction between different views and objectives of approaches to learning reflected in the organization of informal and formal learning practices calls for a closer look at how connecting everyday and academic learning practices are played out in regular classroom interactions. While contradictory practices in education are not unusual, in this case, it seems important to gain better knowledge of how these practices of connecting everyday and academic learning are played out over time and, in particular, how teachers' frame and anticipate learning activities when drawing on everyday and informal experiences of students in classroom interactions. The findings of the case study are reported in three research articles.

Study 1 explored how teachers' framing of learning activities opens and closes opportunities for students to position themselves to co-construct meaning. The findings illuminated that whole-class introductions are characterized by teacher-led talk that invites students' to be active contributors to a limited extent when engaging with their own everyday and informal experience. At an overall level, the findings addressed how

teachers framed opportunities (in an expansive or bounded manner) to make use of everyday and informal experiences of students as (1) tools to make use of student's authentic experiences, positioning students as active contributors; (2) resources for disciplinary recitations of authoritative knowledge, offering students opportunities to build on someone else's knowledge; and (3) "surrogate resources," making it difficult for students to recognize "the imagined everyday experience" as a learning resource. The study illustrates the complexities of connecting everyday and academic learning practices.

Study 2 documents the teacher's dilemma of framing students' digital engagement in their leisure time as a resource for academic learning, which expands student practices and creates tensions within and across the institutional framing of schooling. At an overall level, the findings displayed that when the students' experiences and knowledge of engaging with playful digital practices in informal learning activities are invited into highly regulated educational purposes, the discrepancies in the views of learning and the goals of the disciplinary practice lead to tensions and practical challenges. The study also displays that when the teacher frames task and digital tools as part of disciplinary science teaching but contextualizes them in everyday and informal contexts, both the teacher and students struggle to negotiate accountable ways of engaging in the new practice. The study suggests the teacher's vital role in framing ways of engaging with new tools and tasks within the layers of accountable practices.

Study 3 explores how a teacher made use of a concrete material from her kitchen cupboard as a contextual resource for a problem-based learning activity. The study illustrates how a teacher invited students to articulate and recontextualize similarities and differences in everyday and academic learning practices. It also illustrates how the material tool opened for sophisticated thinking, which was not possible without the material available. It displayed a tension between context-bound resources, such as the sense of taste and sight, which allowed for exploration and student engagement, and more context-dense resources, such as a scientific result table written at the blackboard, which seemed to privilege academic forms of interactions. The study suggests the potential of making use of the meaning of materiality to promote academically productive classroom talk.

The study methodologically contributes to the field by providing a longitudinal research design that enables me to generate knowledge of how connecting everyday and

academic processes are played out over time and how teachers and students engage in these particular learning activities in classroom interactions. It theoretically contributes to the field by presenting a theory-based analytical framework that advances into empirically grounded categories of classroom interactions over the course of the study and by showing, in particular, how teachers frame and constitute learning activities by drawing on the everyday and informal experiences of students in regular classroom practices.

The study is relevant in the way it offers theoretically informed and empirically grounded descriptions of the complexity of inviting the everyday experiences of students as resources for academic learning. This enables the study to contribute with new knowledge on how the layers of accountable practices within and across regular classroom practices seem to play an important role when challenges emerge as teachers encourage the use of experiences, tools, and media practices that are contextualized and framed differently.

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1 Introduction

Every day I look for opportunities to draw on my students' interests from their life outside of school to connect with the topics I teach. . . . Sometimes I succeed in supporting them to build on their everyday knowledge and create new ideas. But most often, I struggle. It is difficult to find relevant examples and suitable concrete objects to bring into the classroom talk so that the various experiences from the everyday life of my students can become adequate resources for them in creating better academic understanding. I wish I knew how to make better and more varied opportunities for them to create connections among their many experiences so that the students experienced my teaching as less disconnected from their everyday life. (Personal notes after an informal talk with teacher Anderson, October 2013)

The reason for starting with this short narrative from one of many informal talks with the four teachers I have followed during one year of lower secondary school is simple: the relevance of teachers' wish to utilize the everyday experiences of students as resources to create connections with academic learning activities. Over the course of a school year, I video-recorded numerous occurrences in which I witnessed how the teachers and students struggled to negotiate accountable ways to make use of students' experiences. I recorded lessons where teachers and students made use of digital tools from students' leisure time, such as wiki blogs and mobile phones, to invite students to co-construct their expertise into subject-specific learning activities. I witnessed how teachers made use of material objects from everyday life as resources to better understand the relationships between scientific explanations and real-world phenomena. Moreover, I observed the various ways teachers introduced connections between the subject matter at hand and local news and explicated its relevance with examples from popular culture. I also saw teachers draw on students' leisure activities to connect them with subjects, yet the educators struggled to make use of these resources beyond making superficial references, adding temporal recaps, or consolidating.

The general background of this thesis is how everyday and informal experiences and tools are used as resources for academic learning. The introduction points toward several possible fields of relevance within educational research: One field of interest is studies referring to students' identities, motivations, and interests, focusing on how the content in school can become more attractive and engaging for students (Hull & Schultz,

2002). Another field of interest could be studies exploring students' movement across the contexts of learning, or students' "learning lives" (Sefton-Green & Erstad, 2017), where learning trajectories become the focus of analysis (Ludvigsen, Lund, Rasmussen, & Säljö, 2011b). Conversely, I have chosen to position this study exploring classroom interactions while teachers and students engage in connecting everyday and academic learning practices, with a particular focus on the teacher's role. More precisely, the main aim is to gain knowledge of classroom interactions, and in particular, how teachers frame and constitute learning activities by drawing on the everyday and informal experiences of students and how they are used as resources for engagement and conceptual understanding in naturally occurring classroom interactions. To persuade this aim, I will investigate how teachers frame learning activities with the discursive, material, and digital resources available in the situation and how students respond to and co-construct meaning from the teachers' framing of accountable knowledge.

By drawing on sociocultural and dialogic perspectives on teaching, this thesis holds that learning and meaning making are not only matters of conceptual acquisition but also concern interactional processes. That means that connecting everyday and academic learning practices are interactional processes in which social practices and cultural tools are used as resources for joint participation, modes of thinking, and conceptual understanding (Cole, 1996; Kumpulainen & Rajala, 2017; Vygotsky, 1986). Intercontextuality is my analytical lens to explore teacher-student interactions. The analytical tool enables me to explore the dynamics in social interactions as teachers and students select the parts of discourses they find relevant for teaching and engaging in particular themes or issues and use their meanings as resources in creating new meaning in classroom interactions (Linell, 2009). In this study, creating intercontextuality involves investigating interactional accomplishments that are both enabling and constraining opportunities for discourses that involve building and using fragments of understanding from everyday and academic learning practices as islands of temporarily shared understanding (Linell, 1998). Thus, creating intercontextuality can be defined as the ways that teachers and students engage in making connections within and across ideas in the ongoing meaning-making interactions of classroom teaching and learning (Bloome, Beierle, Grigorenko, & Goldman, 2009; Engle, 2006; Floriani, 1993). Floriani (1993) first introduced the concept of intercontextuality associated with classroom life grounded in text practices as ways of "being with texts." Criticizing the conceptualizing of intercontextuality as grounded in text practices, Engle (2006) developed a situated

approach building on sociocultural perspectives and the epistemologically notion of creating intercontextuality, meaning “weaving together” (Daniels, 2007). Thus, creating intercontextuality involves not only the cognitive process of knowing but also the social processes of doing, and “that doing inherently involves an exercise of human agency” (Engle, 2006, p. 455). Accordingly, this thesis further develops the conception of intercontextuality as a part of teaching and learning activities and examines the creation of intercontextuality in regular classroom interactions as social processes of weaving together meaning potentials rather than outcomes.

When teachers frame and constitute learning activities by drawing on students’ engagement in everyday and informal learning activities, tensions, and practical challenges arise regarding views of learning; that is, the relevant or accountable ways of engaging within and across contexts of learning and the goals of the different practices. Accountable practices can be studied as “elements of situated knowing-in-practice i.e. as elements of knowing how to behave” (Mäkitalo, 2003, p. 496). Accordingly, the social processes of assigning meaning to learning opportunities involve teachers and students negotiating and co-constructing what they understand as expected actions, objects, and contributions in an activity. Additionally, a significant premise is that social practices are multiple and full of interruptions, which includes the aspect that they are discontinuous (Dreier, 2003). This means that “social structures do not work in an unidirectional way, but as open-situated practices, where the local interaction is what connects the multiple trajectories of the participation” (Ludvigsen, Rasmussen, Kränge, Moen, & Middleton, 2011, p. 106). Consequently, the social construction of intercontextuality, the focus of study in this thesis, is on classroom practices where teachers and students interact and co-construct meaning of how to engage in accountable ways to make use of everyday and informal experiences and tools as resources for academic learning. Thus, in the social interactions of classroom practices, teachers and students engage in articulating and recontextualizing meaning potentials as accountable resources for dialogically creating intercontextuality (Linell, 1998). According to Lantz-Andersson (2009), “This implies not only a theoretical orientation, it also has epistemological implications for the assumptions of how people learn and appropriate various resources that facilitate their participation in different practices” (p. 23). Accordingly, the epistemological stance of this study implies that I study in situ how teachers and students negotiate accountable ways of engaging in new practices that make use of everyday and informal experiences and tools as relevant resources in the context of schooling. In these situated practices, the teacher has a significant role in framing and constituting accountable practices. Analyzing

the teacher's framing of activities, the students' negotiations, and how they socially co-construct meaning through classroom interactions enables me to study the layers of accountable practices in institutional contexts and their functions as mediators of classroom interactions while creating intercontextuality. This leads to the pedagogical ideas under consideration.

1.1 The pedagogical ideas under consideration

For decades, the complex relationships between how everyday and academic learning is related has been of interest for educational researchers. Both Dewey (1959) and Vygotsky (1987) were preoccupied with the connections and relationships of learning inside and outside schools. Dewey (1916) stressed that “the learning in school should be continuous with that out of school. There should be a free interplay between the two. This is possible only when there are numerous points of contact between the social interests of the one and of the other” (p. 358). Accordingly, the expansion and complexity of scientific knowledge in all areas and disciplines makes it difficult for schools to add more facts to the curriculum. Therefore, he argued that schooling should focus on “generic skills and competences that are relevant across contents and settings” (Edstrand, Lantz-Andersson, Säljö, & Mäkitalo, 2016, p. 39). While Dewey (1959) stressed that experiences gained in school should “grow gradually out of” (p. 23) the experiences that students gain in their lives outside school, Vygotsky (1987) highlighted the mutually constitutive relationship between spontaneous (replaced with “everyday” to avoid biological determinism) and scientific conceptual understanding and higher-order thinking. In making the distinction between everyday and scientific¹ concepts, Vygotsky (1987) drew attention to the differing nature of their paths of development and argued that “spontaneous growth is one that happens without its being explicitly intended and deliberately fostered in a school-like fashion” (Sfard, 2012, p. 6). Vygotsky spoke about spontaneous concepts “as those that were acquired by the child outside the context in which explicit instruction was in place” (Daniels, Cole, & Wertsch, 2007, pp. 310-311). These types of concepts are empirical representations and do not offer systematic structures to cognition. Scientific concepts are research-based distinctions; they are distinct networks of concepts bringing about conceptual structure for reflective awareness and deliberate control of a

¹ The term “scientific” used by Vygotsky is not restricted to natural sciences, “but covers all comparable communities, such as those of history, philosophy, arts and so on”(Scott et al., 2011, p. 6).

phenomenon and related aspects (Vygotsky, 1978). Several studies have confirmed that it is a challenge for the teacher to address the relationship between scientific ideas and everyday experiences in the social interactions of classroom dialogues to support students to appropriate and construct similar connections for themselves on the personal plane (Ito et al., 2013; Ludvigsen, Lund, et al., 2011b; Mercer & Howe, 2012; P. Scott, Mortimer, & Ametller, 2011; Sfard, 1998).

The distinction between everyday and academic thinking skills have been criticized and contested. Historically, one of the first prominent researchers to scrutinize learning inside and outside of school was Lauren B. Resnick. In her frequently cited presidential address to the American Educational Research Association (AERA), Resnick (1987) discussed how school learning differs from other forms of learning. Her ambition was to show how learning in and out of school varies in certain categories, rather than looking at how they connect. Exploring four broad contrasts between the sites, she categorized them as follows:

1. Individual cognition in school versus shared cognition outside.
2. Pure mentation in school versus tool manipulation outside.
3. Symbol manipulation in school versus contextualized reasoning outside.
4. Generalized learning in school versus situation-specific competencies outside.

Even though these clarifications were made more than 30 years ago and have since been further elaborated on, they still point to vital challenges for schooling. For instance, building on the classic literacy review by Hull and Schultz (2001), a growing consensus has emerged documenting that we can come to understand more about learning if we study both similarities and differences between learning processes inside and outside of school and the complex relationships between them. Similarly, in a relatively new review of the organization of informal learning, Rogoff, Callanan, Gutiérrez, and Erickson (2016) discussed the dissatisfaction with the label that informal learning has been defined as learning that occurs outside of schools or treated simply as an alternative to formal, didactic instruction. They argued for fundamentally different ways to organize learning activities, representing two distinct paradigms. “What distinguishes informal from formal learning is that it is nondidactic, highly collaborative, embedded in meaningful activity, and initiated by the learner’s interest or choice (rather than resulting from external demands or requirements), and does not involve assessment external to the activity” (p. 389). This study follows Rogoff et al.’s (2016) line of discussion, emphasizing that “*how* learning is organized and supported is more important than *where* learning occurs” (pp.

357-358). This is highly relevant because we know little of *how* connecting everyday and academic learning practices are organized and supported in regular classroom interactions over time and the role of teacher practices in promoting academically productive learning activities. Consequently, this thesis contributes to educational research by providing a theoretically informed and empirically grounded description of how teachers anticipate and draw on the everyday and informal experiences of students as resources for academic learning in regular classroom practices.

Evan though 100 years have passed since Dewey stressed the importance of creating connections among students' in-school and out-of-school experiences and since Vygotsky explicated the mutually constitutive relationship between everyday and scientific conceptual understanding, these pedagogical ideas continue to evoke interest in the field of educational research (Arnseth & Silseth, 2012; J. S. Brown, Collins, & Duguid, 1989; Erstad, Kumpulainen, Mäkitalo, Schröder, Pruulmann-Vengerfeld, & Jöhannsdóttir, 2016; Hull & Schultz, 2002; Kumpulainen & Mikkola, 2014; Leander, Phillips, & Taylor, 2010; Ludvigsen, Lund, et al., 2011b; Resnick, 1987; Sawyer, 2006). This is highlighted in Lund's (2016) timely question related to discussing schools as only one of multiple contexts for learning: "How can schools recognize, open up to, and appropriate out-of-school practices that are constitutive for learning and development?" (p. 130). Therefore, before we turn to the contributions of this thesis, I need to further conceptualize what schools and schooling entail in a Nordic and Norwegian context.

1.2 Schools and schooling in a Norwegian context

Questioning what schooling is all about is due to the fact that several societal changes are taking place. By taking a Nordic and Norwegian approach, Erstad (2013) argued that growth in the number of students makes school an increasingly important social institution in our society. In Norway, of a population of about five and a half million, more than one million are in class, from compulsory to adult education courses. In addition, the resources available to students, teachers, and school leaders are different today than they were before. The great majority of Norwegian schools (students aged 6 to 18) are public schools, administered and funded by the Ministry of Education and Research. The Norwegian education system has a long tradition of being unitary and centralized with no school fees. Statistics from the Organization for Economic Cooperation and Development (OECD, 2017) shows that Norway is one of the countries that spends the most on schools per capita, more than 50 percent more than the OECD

average. Additionally, the focus of teachers and teacher–student interactions has changed toward the students’ needs. In the Norwegian context, several educational reforms have been implemented. For instance, the “Knowledge Promotion Reform” (Norwegian Ministry of Education and Research, 2006), aims to provide the same opportunities for all students for developing fundamental skills, which will enable them to actively participate in the knowledge society. Next, the strategy for lower secondary education in Norway, called “Motivation and Mastery for better Learning” (Norwegian Ministry of Education and Research, 2011), aims to improve teachers’ classroom management to enhance numeracy, reading, and writing for lower secondary students. Finally, the Official National Report, “The school of the future. Renewal of subjects and competences” (Official Norwegian Reports NOU, 2015), describes the necessary competences of the future and recommends that subjects be renewed, with a particular focus on four areas of competencies: subject-specific competence; competence in learning; competence in communicating, interacting, and participating; and finally, competence in exploring and creating (Official Norwegian Reports NOU, 2015, p. 9). According to the Ministry of Educating and Research, the renewal of subjects will be implemented and enacted in schools in 2020. Due to these changes, schools will become even more important as spaces for social interaction and learning. Even so, critical voices have suggested that schools need to be “more in a dialogic relationship to other social contexts where we learn and interact” (Erstad, 2013, p. 6).

Since this study is situated in a Norwegian context, one issue that has become more prevalent in research in recent years is the special significance of Nordic countries as places for emphasizing initiatives within and across learning contexts. The reasons include the prominence of public schooling, the long tradition of encouraging activities outside of school as resources for academic learning through, for instance, project work, and finally, the high access to digital technologies in society (Erstad, Kumpulainen, Mäkitalo, Schrøder, Pruulmann-Vengerfeld, & Johannsdottir, 2016). Moreover, a significant issue is that the educational policies in the Nordic countries have been more stable, meaning that political shifts have not caused dramatic changes in educational policies.

Primary (students 6–12 years old) and lower secondary schools (students 13–15 years old) are compulsory and run by local municipalities. Principles and criteria for education are defined by laws that specify a general national curriculum, compulsory subjects, and standard assessment requirements. Regulations regarding examination requirements, syllabus content, and the allowed combinations of subjects cultivate some

degrees of standardization and quality across small (fewer than 100 students), medium (between 100 and 299 students), and large schools (more than 300 students). Still, recent educational reforms have opened up opportunities for local school authorities and teachers to play a central role while being allowed to adapt curricula to local conditions and create strategies for new technological implementations.

Teachers' ability to constitute new technology as a resource for connecting everyday and academic learning practices empowers children and youth in Norway and other Nordic countries as international frontrunners in the active use of technologies (Gilje et al., 2016). Compared to other European countries, young people (16–24) in Nordic schools use computers and the Internet more on a daily basis. A recent report entitled "Monitor School 2016" (Berge, 2016), which investigates Norwegian lower secondary schools' digital situation, presents the finding that students in the seventh grade use digital technology about four hours per week, mostly in language subjects and least in mathematics. Notably, teachers and students often just use digital technology as a supplement to more traditional learning resources, such as textbooks. In fact, the findings document that the majority of digital use is done by the teachers using digital tools for instruction, but less as a student activity. Since digital practice is addressed as one of the key tools that might enable schools to be capable of bringing the everyday world into the classroom and contribute to relevant educational practices for the students of the 21st century, the findings from the report is disturbing for educational policymakers. Researchers have documented that digital technologies create new possibilities for connecting everyday and academic learning practices, and it changes our conception of learning environments (Drotner, 2008; Erstad, Kumpulainen, Mäkitalo, Schröder, Pruulmann-Vengerfeld, & Jøhannsdóttir, 2016; Säljö, 2010). Still, the report suggests that the teachers seem to lack competencies in utilizing digital technologies as resources for creating relevant learning activities in subject matters (Berge, 2016). This will be further elaborated upon, but first I will present the aims and objectives.

1.3 Overarching aim and objectives

The main aim is to gain knowledge of classroom interactions and, in particular, how teachers frame and constitute learning activities by drawing on the everyday and informal experiences of students and how they are used as resources for engagement and conceptual understanding in naturally occurring classroom interactions. To fulfill this aim, I will investigate how teachers frame learning activities with the discursive and

concrete resources available in the situation and how students respond to and co-construct meaning from teachers' efforts. More precisely, I will address four specific objectives. The first of these objectives represents the main objective, and the others function as sub-objectives.

The main objective is described as follows:

To provide a theoretically informed and empirically grounded description of regular classroom practices and how teachers anticipate and draw on the everyday and informal experiences of students as resources for academic learning.

The longitudinal research design enables me to generate knowledge of how these processes are played out over time and how teachers and students engage in these particular learning activities in classroom interactions. In particular, I will analyze how teachers and students interact and engage with the cultural resources available in the practices.

Sub-objectives

- 1. To explore how teachers' framing of learning activities opens and closes opportunities for students to position themselves in response to the teacher's framing and to co-construct meaning (i.e., create intercontextuality).*
- 2. To analyze how the dynamics of what is framed as accountable to the community, the standards of reasoning, and accuracy in situ create tensions within the institutional context of classroom practices.*
- 3. To provide a detailed description of how teachers invite students to share their experiences and concrete objects from everyday and informal practices as resources for engaging in academic learning.*

The sub-objectives involve a focus on classroom interactions and the ways the teachers frame learning activities that open or close opportunities for students to engage in creating intercontextuality within and across contexts of learning. To pursue the sub-objectives, I provide an overview of which aspects are prominent in the different studies. Each study constituting the empirical grounding of the current thesis addresses the overarching aim, although they do so in different manners.

Study 1 explores how teachers and students engage in creating intercontextuality while making use of the everyday and informal experiences of students as resources for academic learning. The study presents a case following four teachers and 50 students in two ninth-grade classes during regular lessons throughout an academic school year. In this study, 60 video-recorded hours of lessons observing teachers handling science, Norwegian (L1), religion, and ethics were subjected to interaction analysis. The notion of framing and positioning (Engle, 2006) works as an analytical concept. Study 1 has an analytical focus on all the subjects of the teachers and the main purpose is to address the following two research questions: (1) *How do teachers frame opportunities for constructing intercontextuality between everyday and scientific ideas when initiating topics in regular lessons?* (2) *How do the participants position themselves when they interact to create intercontextuality?* The data enabled an analysis of how different teachers anticipate and draw on the everyday and informal experiences of students as resources for academic learning activities during a school year. Consequently, the study contributes to the overarching aim by focusing on how the teachers' different ways of drawing on expected everyday and informal experiences of students open and close opportunities for students to position themselves to engage in co-constructing meaning (i.e., creating intercontextuality).

In *Study 2*, I explore how a teacher and students negotiate and co-construct accountable ways of engaging with a wiki blog as a learning resource. In a science project lasting for 8 weeks, a collaborative wiki blog tool is introduced to support the teacher's intentions of engagement and conceptual understanding of electricity among the students. However, when teachers apply learning activities drawing on students' engagements in informal activities to more academic learning activities, tensions and opportunities arise regarding accountable ways of engaging within and across these contexts of learning. The study presents a case involving a ninth-grade class consisting of 26 students. The study employs the three dimensions of accountable talk: to community, accepted standards of reasoning, and knowledge (Michaels, O'Connor, & Resnick, 2008) to analyze the teachers' framing (Engle, 2006) and students' co-construction of meaning in practice. Two research questions are analyzed: (1) *How does a teacher frame students' experiences as resources for academic learning activities?* (2) *How do students orient themselves to the teacher's framing and co-construct meaning?* This study contributes to the overarching aim by exploring how the dynamics of what is framed as accountable practices by the teacher create tensions within the institutional context of classroom

practices. The analysis of the tensions between the learning activities conceptualized as part of formal science teaching, but contextualized in students' outside-of-school experiences, contributes to the overarching aim by displaying how the teacher and students struggle to co-construct and renegotiate meaning among layers of accountability in classroom interactions.

Study 3 explores how a teacher invited students to share experiences from everyday and informal practices as resources for engaging in academic learning, framing the meaning of materiality as a significant contextual resource for a problem-based task. In the case study, the teacher frames an unknown powder from her kitchen cupboard as the contextual resource and invites students to share their everyday and academic experience as resources for exploration and meaning-making. The analytical concepts of framing (Engle, 2006) and recontextualizing (Linell, 2009) are used to explore how everyday and informal experiences of students are used as resources for moving toward more academic learning practices. The study presents a case following one teacher and 26 students in a ninth-grade class during an academic school year. The video-recorded material consists of 20 hours of science lessons, which are analyzed in detail for a sequence of 60 minutes using interaction analysis. Two interlinked research questions are analyzed: (1) *How does a teacher constitute a material tool as a resource for meaning-making while inviting everyday and scientific practices as resources for academic learning?* (2) *How do students orient themselves to the teacher's framing and negotiate ways to engage in classroom practices to co-construct meaning?* The study contributes to the overarching aim by providing a detailed description of how teachers invite experiences and concrete objects from everyday and informal practices as resources for students to engage in academic learning. The analysis show that the teacher's framing of an unknown material as the contextual resource made it possible for students to reason and use everyday and academic experiences and material tools as mediating resources to reason in sophisticated manners (i.e., to create intercontextuality).

1.4 Outline of the thesis

The current thesis is organized in two parts: the extended abstract (Part 1) and the three articles (Part 2).² The extended abstract comprises six chapters, including this

² The extended abstract is conducted in American English while the three articles are in British English according to Journals author guidelines.

introductory chapter. The current section (*Introduction*) introduces the background and overarching aim of the thesis and includes a description of how the three empirical studies contribute to the overarching aim. *Chapter 2, Review of Relevant Research*, addresses empirical research on how everyday and informal experiences are used as resources for academic learning with a particular focus on the teacher's role. *Chapter 3* outlines the theoretical approach I have employed to address the objectives of the thesis. I describe the sociocultural and dialogic stance taken in the current thesis. I also introduce the notion of intercontextuality and the key analytical concepts of framing, positioning, accountability, and recontextualizing. *Chapter 4* presents the empirical context and an argument for the relevance of the case study approach. Methodological choices are thoroughly discussed, and the research design, data corpus, interaction analysis, and analytical procedures are explained. Finally, research credibility, including reliability, validity, and ethical considerations are addressed. *Chapter 5* summarizes the three articles reported in this thesis. Finally, in *Chapter 6*, the overall findings, contributions, and possible implications are discussed.

Part II consists of three studies that appear chronologically according to the time I worked with them during my PhD period. In this way, the articles make visible my development as a researcher, both theoretically and methodologically. The articles appear in the following order:

- Study 1: Wiig, C., Silseth, K., & Erstad, O. (2017). Creating intercontextuality in students learning trajectories. Opportunities and difficulties. *Language and Education*, 31(7), 1–17.
<https://www.tandfonline.com/doi/abs/10.1080/09500782.2017.1367799>
- Study 2: Wiig, C., Wittek, L., & Erstad, O. (In Press). Teachers, trajectories and accountability. Creating intercontextuality with a wiki-blog as a learning resource. *Learning, Culture and Social Interaction*. Published online July 22, 2018. <https://www.sciencedirect.com/science/article/pii/S2210656118300138>
- Article 3: Wiig, C. (Accepted for review). Recontextualizing classroom resources. Connecting everyday and academic learning practices. *International Journal of Educational Research*.

2 Review of the Relevant Literature

This chapter offers a general outline of the emerging field of national and international research exploring how everyday and academic learning practices can be connected. To pursue the objectives of the thesis, I focus the review around existing research addressing the various ways of connecting everyday and academic learning practices. The review is structured as follows: First, the approach to the literature review is described (method). Second, I will address some of the institutional challenges recognized in the research literature by reporting on three recent and particularly relevant meta-reviews. I will concentrate on studies focusing on the role of the teacher and highlight some of the issues raised in this regard. This discussion enables me to document the limitations of existing research and what can be gained from providing a longitudinal and empirically grounded study of naturally occurring classroom interactions. Some of the key studies in these categories and their critiques of teaching and classroom practices will be discussed in depth and related to the research questions. Third, I will review some of the studies using the concept of intercontextuality and discuss some key studies in the fields of funds of knowledge (FoK) and new literacy studies (NLS) to address the challenges for education and teaching in the digital age. Finally, the thesis is positioned within the literature and the focus of the thesis argued for.

In the research literature, different concepts have been used to understand relationships between everyday and academic learning practices. For instance, concepts such as *connected learning* (Ito et al., 2013), *boundary crossing* (Akkerman & Bakker, 2011), *continuities and discontinuities* (Bronkhorst & Akkerman, 2016), *pedagogical link-making* (P. Scott et al., 2011), *third space* (Gutiérrez, Baquedano-López, & Tejada, 1999), and finally, the key concept of this thesis, *intercontextuality* (Bloome et al., 2009; Engle, 2006; Floriani, 1993). Consequently, different authors use different terms when referring to the development of learning across contexts. While the terminology “connecting everyday and academic learning practices” is used in this study, the review includes the terms used in each cited study to situate their findings and contributions to the field of research in both the Norwegian and international contexts.

2.1 Doing the literature review

The data sources of this review comprises peer-reviewed empirical research studies prior to and published in March 2018. Systematic searches in public databases, such as

Education Resources Information Center (ERIC), Idun, and EBESCO, were conducted in three waves (August 2014, June 2017, and March 2018). *Intercontextuality, knowledge in motion, learning across contexts, connected learning, boundary crossing, formal and informal learning, funds of knowledge and in-school and out-of-school* were used as terms in one or all fields, with restrictions regarding the source (only peer-reviewed), language (only English), and year of reference (prior to and published in March 2018). The complexity and the variety of concepts, methods, contexts, and theories resulted in an overall list of more than 12,300 unique hits. From this list, two restrictions were selected to build a comprehensive data set of articles: “teachers” and “classroom.” This resulted in a complete list of 829 unique hits. From this list, 195 references were selected based on two rules: (a) terms related to connecting learning practices were used as central analytical concepts in theoretical or empirical analysis, and (b) the study focused on learning in its broadest sense (i.e., including connected learning in educational institutions across disciplines and age levels, and/or related to institutions where learning is an explicit goal, such as in after-school programs, museums, and science centers). The latter rule mainly implied that studies in therapeutic and religious contexts were excluded. The selection took place based on abstracts and, in cases of doubt, on full texts. Nine of the selected references used the term intercontextuality in the title, abstract, or elsewhere. Two of these selected references were related to public theology, one was about intertextuality in a Russian novel, and one was my own published study, leading to a final number of 191 studies for review.

Search terms in ERIC	Total	And Teachers	And Class Room	2013 - 2017	EBESCO (and teachers and classroom) 2000-2018
Intercontextuality	7	0	0		5
Connected learning	514	239	106	22	34
Knowledge in Motion	89	22	9	2	0
Learning across contexts	4150	73	23	7	11
Boundary crossing	421	172	43	10	16
Formal and informal learning	1074	325	93	31	45
Funds of knowledge	467	264	117	39	0
In and out-of-school	5657	1778	438	62	84
Sum	12379	2873	829	173	195

Table 1. Overview of the data sources and the search terms

For the review, the full texts were first read and coded on paper according to contextual information (specific domain, level of education, theoretical underpinnings, and tools or resources in use) and conceptual information (terms, implicit or explicit definitions, methodology, claims, and findings). The contextual information of the studies was

scrutinized for determining different practices across levels of education and disciplinary domains. The conceptual information was analyzed regarding the nature of the terms used and the ways that connected forms of learning activities were played out (Question a), and the learning mechanisms taking place (i.e., what processes were described as being the basis for the connected forms of learning intended) (Question b).

Typically, search terms such as “connected learning” retrieved publications offering a set of design interventions and principles for what Pepler, Salen Tekinbas, Gresalfi, and Santo (2014) described as “how to meet the needs of students seeking coherence across the boundaries of school, out-of-school, and today’s workplace” (p. 4). These studies do not focus on the teachers’ role or classroom practices in particular, but analyze students’ “learning lives” (Sefton-Green & Erstad, 2017) and offer valuable insight of students’ collaborative learning practices with various tools and resources or demonstrate how students’ interest-driven activities unfold in out-of-school contexts. Similarly, the search term “teacher” retrieved publications offering a variety of stances on the role of teacher practice in promoting academically productive interactions or student dialogues. These studies contribute with a variety of stances on the issue of what constitute productive interaction, such as the nature and quality of classroom talk in various forms and functions, for instance, research on educational dialogues (Littleton & Howe, 2010a), exploratory talk (Mercer & Wegerif, 1999; Rojas-Drummond, Albarrán, & Littleton, 2008), academically productive student dialogue during collaborative learning (Khong, Saito, & Gillies, 2017), reciprocal teaching in science (Palincsar, Baker, Fitzgerald, & Sherwood, 2016), or braiding teacher practices that promote productive dialogues and learning in mathematics classrooms (Webb, Franke, Turrou, & Ing, 2015). Despite their valuable contributions to research-based accounts of the role of teacher practices in educational dialogues and productive teaching, these studies do not focus on connected learning per se and are excluded from the reviewed studies.

The selection of reviewed studies focuses on empirical research that emphasizes various forms of connecting everyday and academic learning practices, but with a particular focus on the role of teacher practices in school contexts. The relevant selected studies are organized in the following themes: 1) studies on the concept of intercontextuality and 2) studies that criticize schools for being disconnected, addressing the importance of exploring learning and teaching in out-of-school contexts. These studies represent two relevant perspectives, FoK and NLS.

The review was finalized on March 15, 2018 after several key journals were searched for relevant articles published within the years of 2013–2018 by exploring databases, books, and edited chapters. In addition, the literature was identified using Scopus for the well-cited and classic sources, handbooks of literacy studies, and some personal contacts developed from the latest conferences and seminars for a novel outlook. In the following section, I first present and discuss three recent meta-reviews. Then, I present key studies within the above-mentioned themes with a particular focus on the teachers' role and classroom practices. Finally, I provide comments on the reviewed studies, with the thesis positioned within the literature and the focus of the thesis.

2.2 Meta-reviews connecting everyday and academic learning

The existing reviews on connecting everyday and academic learning in school settings have generated significant knowledge about the *complexity* in different approaches, across different grade levels, activities, scales, and even national contexts (Akkerman & Bakker, 2011; Banks et al., 2007; Bransford & Schwartz, 1999; Hull & Schultz, 2001; Knobel & Kalman, 2016b; Rajala, Kumpulainen, Hilppö, Paananen, & Lipponen, 2016). Two recent meta-reviews are particularly interesting because they document the complexity and tensions regarding learning within and across school and everyday contexts. Employing a focus on pedagogical rationales and associated practices, Rajala, Kumpulainen, Hilppö, et al. (2016) recognized an emerging field, claiming that the research “is diverse and disconnected and the ubiquitous nature of the defining concepts being used makes this valuable field of research hard to grasp” (p. 16). Drawing on boundary crossing perspectives, Bronkhorst and Akkerman (2016) focused attention on the status of continuity and discontinuity in students' learning across contexts. Correspondingly, their meta-review confirmed that “a synthesis of the emerging literature is indispensable as a body of literature addressing learning across school and out-of-school contexts is clearly emerging, but is still scattered across different research areas and traditions” (p. 19). An important premise in Bronkhorst and Akkerman's (2016) work is that the complexity is “making it difficult to generalize from findings across typically small-scale studies” (p. 19). Consequently, in Rajala, Kumpulainen, Hilppö, et al. (2016), as well as in Bronkhorst and Akkerman (2016) meta-reviews, the field is seen as fragmented and emerging, the contexts for studying the phenomena is diverged, and a variety of concepts, methods, theories, and research designs are applied. In addition, when accounting for the findings, the analyzed studies were organized along subject-specific

disciplines or levels of education often designed and implemented as interventions to reestablish continuity for students across contexts of learning. Accordingly, the two meta-reviews document the limitations of existing research, since most of their reviewed studies concerned small, single-case, intervention studies focusing on student learning. As a result, the meta-reviews demonstrated the potential of a longitudinal research design that can contribute to the research field with a new understanding based on an analysis of the teacher's role in classroom practices across temporal, spatial, and social dimensions. In the following section, central meta-reviews are delineated in accordance to the research questions and focus on key studies exploring the *teacher's role in classroom practices*.

2.2.1 Continuity and discontinuity across contexts of learning

Three meta-reviews conducted in 2016 are of particular interest to trace some of the most significant contributions to connected learning focusing on the teachers' role in classroom practices. First, Bronkhorst and Akkerman (2016) focused their attention on reviewing studies using the concepts of boundary crossing and boundary objects by synthesizing empirical studies prior to and published in 2013. The boundary crossing literature is mostly used by scholars in educational sciences and educational psychology (Akkerman & Bakker, 2011) and is often found in studies that explicitly refer to cultural historical activity theory (CHAT) on expansive learning (Engeström, 1987) or situated learning theories on communities of practice (Wenger, 1998). The meta-review's data corpus consisted of 186 peer-reviewed empirical studies addressing different levels of education and subject matters. The aim of the meta-review was "to contribute to the current educational debate with a synthesis of the empirical literature on students' learning across school and out-of-school contexts" (Bronkhorst & Akkerman, 2016, p. 19). Even though the meta-review focused on student learning, the findings document the complicated challenges schools and teachers experience in constructing boundary crossing activities to create continuity toward out-of-school contexts:

These include going beyond sugarcoating (i.e., superficial alterations without consequences for learning and teaching) in connecting to out-of-school, (also) meeting existing curricular standards, especially if out-of-school is contradictory to school, deliberating when and where educationalizing (i.e., imposing educational structure, cancelling out unique properties of out-of-school) is (still) constructive and ensuring sustainability of the initiatives with scarce resources, not at the least time. (Bronkhorst & Akkerman, 2016, p. 28)

Bronkhorst and Akkerman's (2016) described how different actors involved in students' learning activities experience continuity, discontinuity, or both, leading to four manifestations of (dis) continuity in the reviewed literature. Relevant to this study are the findings that display intended continuity, characterized as activities designed and implemented in educational settings proposed to (re-) establish continuity between schools and out-of-school contexts explicated as intersecting activity systems. "What characterizes these studies is their up-front acknowledgement of the importance of connecting to out-of-school, empirically describing and/or evaluating interventions for that purpose" (p. 23). Based on rationales rooted in authentic education or literature on informal learning, these studies stress that out-of-school contexts are more authentic, rich, or meaningful, offering possibilities for more engaging learning, which is often contrasted to the lack of student engagement found in school (e.g., Nielsen, Nashon, & Anderson, 2009). Creating interventions using objects or persons, referred to as boundary objects or brokers (Akkerman & Bakker, 2011), these studies seek to make school content more engaging by representing students' interests in class. This includes using rap lyrics (Aliagas Marin, 2017; Polman, 2006) and social media, such as blogs (Lantz-Andersson, Vigmo, & Bowen, 2016; Rasmussen & Hagen, 2015) or Facebook (Dohn & Dohn, 2017; Lantz-Andersson, Vigmo, & Bowen, 2013). As most of the reviewed studies in this meta-review concern single case studies, Bronkhorst and Akkerman (2016) call for a more systematic and valuable larger-scale research to explore patterns for (dis)continuities across participation contexts. Moreover, characterizing the intervention studies is designed to reestablish continuity across contexts, document a gap, and demonstrate the potential contribution of this thesis, since the aim is to explore the unfolding practices in regular classroom interactions during one academic school year while teachers and students intend/attempt to create continuity across learning contexts in situ.

Akkerman and Bakker (2016) examined studies of given discontinuity. They described teachers' lack of knowledge of students' out-of-school contexts, criticizing how teachers failed to recognize, connect to, and encourage students' unique backgrounds, abilities, and expertise that they could bring to the classroom as valuable resources for learning (Andrews & Yee, 2006). The fact that teachers have a lack of knowledge or seldom recognize or create opportunities for boundary crossing activities between students' learning activities in out-of-school contexts is confirmed and further elaborated in a detailed analysis of teacher-student interactions in this thesis. Secondly, Akkerman and Bakker's (2016) findings that manifest intended discontinuity as deliberately sought

for have been corroborated in several reviewed studies. Those findings display that some differences and distance between school and students' life outside of school could be valuable in their own right (Biesta, Thorpe, & Edwards, 2009). For instance, Hamilton and Zufiaurre (2014) highlighted the danger of the "pedagogization of everyday life," arguing that leaving interest-driven and playful activities away from planned didactic activities is beneficial. Gutiérrez et al. (1999) displayed examples wherein different rules apply in school and out-of-school as different activity systems. The manifestation of intended discontinuity to create distance among different rules or to let some leisure time activities remain as student's out-of-school activities is recognized in this study. However, the rationale for creating distance among in-school and out-of-school practices remains implicit and unclear in this thesis when it comes to teachers' selection of relevant resources and students' refusal to participate in creating continuities in some learning activities.

2.2.2 Connected through inclusion, competence, agency, or learning lives

In the second meta-review, Rajala, Kumpulainen, Hilppö, et al. (2016) represent a review of empirical research contributions for studying the learning lives of young people. In the review, the authors discuss the findings derived from their thematic review of research literature around pedagogical rationales and associated practices and tools for connecting learning across school and out-of-school contexts. The aim was to create "conceptual clarity about the topic and thus contribute to building a more coherent understanding about the nature of those practices and underlying rationales that aim to create coherence and connectedness in students' learning lives" (p. 17). The data corpus consisted of 50 peer-reviewed empirical research studies published during 2010–2014 addressing pedagogical approaches that explicitly sought to incorporate students' out-of-school learning into instruction. The meta-review is mainly significant for this thesis because Rajala et al.'s discussion of findings identify three distinct pedagogical rationales and the challenges entailed by each of them.

The first pedagogical rationale, *educational equity and inclusiveness* (Hull & Schultz, 2001), involved a critique and concern for social justice and cultural sensitivity. In these reviewed studies, often built upon FoK approaches, efforts were made to empower underrepresented students by addressing the mismatch between their out-of-school learning and what was officially appreciated as knowledge while interacting in school (Barton & Tan, 2009; Gutiérrez & Jurow, 2016). For example, the roles of task

designs and interactional practices were developed into teaching opportunities that could serve as resources for building upon minority student' out-of-school learning (Gutiérrez & Vossoughi, 2010). Criticizing conventional school science for treating minority students' everyday sense-making practices as deficient and as obstacles for their learning, Warren, Ballenger, Ogonowski, Rosebery, and Hudicourt-Barnes (2001) argued that engaging in the diversity of student FoK can challenge the teachers' established instructional and disciplinary practices (Kumpulainen & Rajala, 2017).

The second pedagogical rationale, *learning requirements and competences of the 21st century skills*, involved fostering the student competencies that were required in the academic, working, or civic lives of this century. This rationale involved a critique of the conventional notions of academic learning that were claimed to produce a disconnection between student learning in and outside of school. For instance, some studies reported on authentic disciplinary practices, such as active citizenship (Silseth & Arnseth, 2011; Åberg, Mäkitalo, & Säljö, 2010), that dealt with complex problems by encouraging teachers and students to merge and juxtapose their forms of thinking from different social and cultural contexts. Similarly, the development of creative and innovative production competencies necessitated by today's economy and working life was seen to rely on a creative process distributed in and across the different sociocultural contexts that student inhabit (Knobel & Kalman, 2016b). Finally, the capacity to produce, manipulate, and create digital features was seen as an essential competence in itself for adapting to the demands of life in the 21st century (Cantrill & Pepler, 2016).

The third pedagogical rationale, *learner agency and identity across contexts*, took students' entire learning ecologies as a starting point and designated school as merely one among many settings in students' learning ecologies (Barron, 2006). This rationale involved a critique of passive student approaches and reconceptualized learners as being capable of negotiating their identities on their own (Akkerman & Van Eijck, 2011), fostering their agency and ownership in learning across multiple and sometimes contradictory activities (Rajala, Hilppö, Lipponen, & Kumpulainen, 2013). In some of the pedagogical approaches that build on this rationale, online learning spaces were created that resembled those that students used in their leisure time. These spaces included blogs (Lund & Rasmussen, 2008), social media (Vigmo & Lantz-Andersson, 2014), and online learning spaces produced for the purpose of research interventions (Drotner, 2008; Kumpulainen & Mikkola, 2014; Strømme & Furberg, 2015; Vasbø, Silseth, & Erstad,

2014). This resembles the findings of intended continuity of Akkerman and Bakker (2011). However, according to Rajala, Kumpulainen, Hilppö, et al. (2016), a key challenge in these digital hybrid spaces was that students were not provided with deliberate support for negotiating and translating difference or managing tensions involved in these encounters. Consequently, the ways in which the virtual spaces were framed in students' peer cultures often clashed with how teachers framed these spaces during formal instruction (Furberg, 2016; Rasmussen, Krange, & Ludvigsen, 2005).

2.2.3 The organization of informal learning

The third meta-review conducted by Rogoff et al. (2016) offers discussions of the imprecise label "informal" and note dissatisfaction with not having a single agreed-upon definition of concepts such as informal learning or in-school and out-of-school learning. Critics hold that it is unfortunate that the labels do not focus on "the processes involved, but rather identify these ways of learning as what they are not" (i.e., informal learning is not "formal" or "inside-of-school") (Rogoff et al., 2016, p. 357). The various characterizations in the reviewed literature demonstrated how school contexts were typically highly regulated learning environments; in contrast, informal or out-of-school contexts seemed to allow more time and space for students' personal interests. These assumptions are discussed and criticized by Rogoff et al. (2016) in their review of the organization of informal learning. Arguing that informal learning is often treated as simply an alternative to formal, didactic instruction, their review documented "that *how* learning is organized and supported is more important than *where* learning occurs" (Rogoff et al., 2016, pp. 357-358).

Grounded in a vision suggesting that scrutinizing how student learning can be supported by examining the variety of ways the organization of informal learning is played out in situ, the aim was to "provide guidance for getting beyond the factory model that has prevailed in schools in the 20th century and into the 21st century" (Rogoff et al., 2016, p. 357). In their review,³ Rogoff (2016) investigated distinct informal settings involving family and community productive endeavors that are not organized around instruction, and innovative schools and "underground" learning programs involving after-school programs and science centers that have an instructional and voluntary leisure

³ Rogoff et al. (2016) presented seven facets of learning representing two distinct paradigms called (a) learning by observing and pitching in (LOPI) to the activities of the family and community and (b) assembly-line instruction (ALI), which is not the same as schooling, but often appears in that setting.

focus. They documented that learning activities are not organized around instructions in everyday family and community settings, but as conversations relying on children's voluntary interest in engaging with the activities. Learning is a valued byproduct of family and community productive endeavors that is achieved by observing and pitching into ongoing productive activities. In these informal learning settings, learners are motivated to be involved by "real productive goals" and need to understand the phenomena to contribute well and participate in valued collaborative practices in the family or the larger community. In contrast, in institutional settings that have an instructional goal of supporting learning and personal interests, with a voluntary leisure focus, such as hands-on science centers, museums, and American after-school programs, play is a central activity that involves a way of exploring. For instance, a visitor's motive for learning in museums is intrinsically voluntary and involves free choice (Allen, 2004). According to Allen and Gutwill (2016), "By contrast with naturally occurring informal learning environments, such as forests and beaches, museums are *designed* to promote enjoyment and learning (. . .) exhibits support the kinds of modular, self-directed learning that is increasingly dominating 21st century learning opportunities" (p. 192). Research findings have shown that museums are authentic learning contexts with flexible structures and no preset curriculum, and visitors with different background experiences can engage with the same exhibit in very different ways. In addition, the reviewed studies display that guidance is a key feature of all the informal learning approaches (Rogoff, 2016). It occurs through suggestions, pointers, and brief explanations in the context of shared activities, as well as through the structure of the activities in which learners engage. Consequently, "These informal learning settings differ in extent of focus on and ways of including play, instruction, collaborative or solo activity, contribution to "real" productive goals, and connection with a larger community"(Rogoff, 2016, p. 356).

Arguing that what is known about organizing learning in informal settings can be instructive for designing new forms of learning in innovative school practices, and this review is of particular interest for two reasons. First, Rogoff et al. (2016) discussed what distinguishes an organization of informal from formal learning: "it is nondidactic; is embedded in meaningful activity; builds on the learner's initiative, interest, or choice (rather than resulting from external demands or requirements); and does not involve assessment external to the activity" (Rogoff et al., 2016, p. 358). The findings about what characterize approaches to learning in organizations of informal and formal learning settings are relevant to articulating a deeper conceptual understanding of learning across

contexts. Second, an exploration of the variety of organizations of informal learning settings provides knowledge to better understand the challenges for teachers to frame interactions that offer rich opportunities for students to engage in connecting and constructing new trajectories through participation in informal and hybrid settings. The findings of Rogoff et al. (2016) document that organizations of informal and formal learning represent two distinct paradigms, reflected in the varied facets of approaches to learning. According to Rogoff et al. (2016),

Schooling depends on legally prescribed compulsory attendance of all children and externally focused assessment to control and attempt to motivate children's compliance with instructional goals. In contrast, in all of the informal learning settings, learning is regarded as based on children's' voluntary interest in engaging with the activities. Assessment is focused on social partners' or designers' evaluation of the success of the activities in engaging and supporting the learners' progress, and on the growth in learners' understanding and skill in the activity. (p. 389)

These perspectives on the highly regulated school context and the variety of organizing informal learning settings resemble the analysis in this thesis. Thus, this study, with its analysis of longitudinal and detailed teacher-student interactions, can contribute to a more distinct understanding of how teachers organize learning activities in regular classroom practices while connecting everyday and academic learning activities. Discussing the tensions and challenges in classroom practices, the analyses of different paradigms and various organizations of informal and formal learning contexts provide valuable insights into what is at stake. In the following section, key studies within the reviewed themes are discussed in relation to the teacher's role and classroom practices.

2.3 Studies using the concept of intercontextuality

Among the 191 reviewed studies, only seven articles used the concept intercontextuality in the title, as a keyword, or in the abstract.⁴

In their well-cited study, Bloome et al. (2009) explored how a teacher framed opportunities for students to socially construct relationships among past, present, and future events for their reading and writing in a ninth-grade language arts classroom. Through thick descriptions and detailed microethnographic discourse analysis of text practices, the researchers provided a series of grounded theoretical constructs about the use of time while creating intercontextuality and collective memories. The researchers analyzed how a teacher constructed learning opportunities while introducing literary texts, discussed them, and let the students produce their own compositions and read them aloud. The study's data corpus consisted of daily videotaped lessons of the teacher and her 22 students' interactions over an 8-week period, plus field notes, samples of student work, and related documents. The findings reveal that in face-to-face interactions, the teacher and students selected a subset of the many events that occurred in the classroom each day to make connections to previous and future events and to events outside the classroom. The students brought their own memories to the classroom interactions, and the study reveals that the shared set of memories were critical to the outcome of the social construction of intercontextuality demonstrated in written texts. The study is relevant because it emphasizes the teachers' role and displays how the collective memories that the teacher frames as opportunities in the public space of the classroom become the basis of new individual memories that are visible in the students' texts. The collective memories constructed in the classroom were part of the "interpretive frameworks for reading and composing written texts" (Bloome et al., 2009, p. 331). The findings are also highly relevant because they revealed how students engaged in taking up the learning opportunities in their texts while being positioned to use past, present, and future events as resources for creating connections within and across lessons.

⁴ Lately, I have become aware of some studies using the notion of intercontextuality in discussions or as indications of future research in digital text productions (see for instance Wyatt-Smith, Elkins & Gunn, 2010, in Imman, Reed & Sands, Chapter 10)). However, these studies make use of Floriani's (1993) early work of intercontextuality as associated with texts as entities in text production and not the work of Engle (2006) on situated social interactions.

Rojas-Drummond et al. (2008) revealed similar findings in primary school students' multimedia text production. Studying how primary school children learn to collaborate on creative writing projects by using diverse cultural artifacts to create intertextuality and intercontextuality amongst oracy, literacy, and information and communication technologies (ICT). In a program called "Learning Together" in a public Mexican School, the study reports on data collected during a team project where three students collaborate to write stories and transform them to multimedia stories using pictures, animation, voice, and music. Five sessions were video-recorded, and the discourse analysis displays how the researchers' could trace segments of students' dialogue, texts, and multimedia texts as being connected with each other based on findings in the content. The findings reveal that intertextuality and intercontextuality occurs while student collaborate creating multimodal texts. However, the study does not discuss the teachers' role or the classroom practices, but highlights students' collaborative writing activities as being connected with their production of multimodal texts.

Finally, Engle (2006) examined how a teacher frames interactions as being temporally connected with other contexts and how the teacher frames the students as authors who engage in a wider community that prepares them to use what they learn in a wide range of other contexts. In contrast to Bloome et al. (2009) and Rojas-Drummond et al. (2008) investigating intercontextuality in text practices, this detailed analysis "suggests that additional insights about transfer can be gained by examining how learning contexts and the students participating in them are framed interactionally" (Engle, 2006, p. 492). The qualitative case study offers an analyses of data from a group of fifth graders who investigated whales' survival and endangerment in a Fostering Communities of Learners Classroom in San Francisco (A. Brown & Campione, 1994). The study's data corpus comprised observations, video recordings, field notes, interviews, and student work. The findings show that when the teacher framed learning episodes to create intercontextuality between them, she regularly said things that were not about the content of the explanations, but also were meta-communications about the episodes themselves, thus helping to frame them as contexts or temporal aspects of the episodes. When the teacher regularly made references to both the past and the future, the findings document that the teacher worked to foster the students' accountability for using what they were learning into new ideas, thus creating intercontextuality. This study is interesting because it emphasizes the teacher's role in framing both time and students' participation to promote intercontextuality in students' learning trajectories. The study documents how a teacher frames students as being accountable for participating as authors of their own

knowledge, and they are encouraged to later use the jointly constructed knowledge to create intercontextuality for their own learning rather than just for a collection of discrete events. The findings are highly relevant because they reveal how intercontextuality can be constructed in social interactions in classroom practices. Additionally, the findings display that the teachers' framing of participation sent a message to the students that they were made accountable for using their experience and knowledge as resources for creating intercontextuality among ideas to be able to use them in future contexts.

Consequently, the three reviewed studies that are relevant for this thesis are small-scale studies of interventions conducted in both primary and lower secondary schools that investigate subjects such as literacy and science and offer different foci (on text practices or social interactions). However, due to a small number of studies, we do not know much about how intercontextuality is constructed in longitudinal studies of social interactions in different classes and with several teachers. For that reason, this thesis contributes to the educational field with a theoretically informed and empirically grounded description of regular classroom interactions during an academic school year. In the following section, key studies of the teacher's role in diverse classroom practices will be reviewed in accordance with the categories presented in the introduction.

2.4 Funds of Knowledge and New Literacy Studies

Here, I discuss two relevant approaches to understand and promote learning across school and out-of-school contexts: FoK and NLS. The rationale for choosing these approaches is that they represent two relevant perspectives addressing some of the institutional challenges that arise when exploring how teacher's constitute and draw on everyday and informal experiences of students as resources for academic learning practices. In my study, they represent secondary principles because much of the research is conducted outside of classroom practices or follow students across school and out-of-school contexts. Additionally, the perspectives represent different methodology and analytical approaches and offer timely and relevant criticism of teachers and schools for being disconnected and unprepared for attaining 21st century skills. Their emphasis on the potential of acknowledging informal learning practices enables me to discuss some of the limitations of these types of studies, and I can show what more detailed studies can offer while describing regular classroom interactions and how teachers draw on everyday and informal experiences as resources for academic learning practices.

Many researchers have argued for the potential of using the experiences and knowledge that students draw on, what they call “funds of knowledge,” as resources for inclusive learning, social justice, equity, and democratic participation (Cremin, Mottram, Collins, Powell, & Drury, 2012; Gonz alez, Moll, & Amanti, 2005; Guti rrez & Jurow, 2016; Guti rrez & Vossoughi, 2010; Hogg, 2011; Moll, Amanti, Neff, & Gonzalez, 1992). The roots of the FoK concept are anthropological. The aim of the research was to identify students’ knowledge and skills learned in the household to connect the instruction to their social life and to improve educational quality for underrepresented children (Greenberg, 1989; Velez-Ibanez, 1988). As part of these studies, teachers received training in ethnography and interviewing before visiting individual’s households to genuinely learn from and about their students and families. Today, the FoK approach has inspired researchers to make interventions to create inclusive instructional practices that connect students’ school learning with their informal life or invite students to bring aspects of their lives into the class (Barton & Tan, 2009; Rosebery, Ogonowski, DiSchino, & Warren, 2010). Recently, Pole (2017) designated the “adult household” as the main unit of analysis for researching young people’s FoK. In his study of the use of avatars as digital representations of online users constructing their identities, he underscores the fact that “increasingly, young people interface with reality via the Internet and other digital devices” (Pole, 2017, p. 59). He suggested that the act of drawing on students’ digital FoK is a vital resource for teachers to provide opportunities for students to become more digitally active in the construction of new knowledge (Esteban-Guitart, Pallisera, Fullana Noell, & Gifre Monreal, 2017; Pole, 2017). Still, the FoK approaches and the classic studies are important for this thesis because they address students’ cultural experiences, personal skills, and knowledge from everyday life as valuable resources to connect with academic learning practices, thus underlining the challenges of students in connecting these to school instruction (Hull & Schultz, 2001; Kumpulainen & Lipponen, 2010; Moje et al., 2004). Two classic studies from the FoK approach are presented because they represent different methodological and analytical approaches and because they are classic studies that point to the relevant issues regarding the teacher’s role.

In a classic ethnographic study of household and classroom practices within working-class Mexican communities in Arizona, Moll et al. (1992) addressed the importance of legitimating and valuing students’ out-of-school learning. Even though studying households in working-class communities is not part of this thesis, Moll et al. addressed an important issue regarding the teacher’s role. In households, the teachers knew the children in “thick and multi-stranded” relationships based on trust and social

relationships on an enduring basis. However, the typical teacher–student relationship seemed “thin and single-stranded,” as the teacher knew the learners only from their performance within rather limited classroom contexts. In addition, the teachers in the classrooms rarely drew on the FoK resources of the student’s world outside the context of the classroom. Because they point to the significance of teachers who know students’ backgrounds, have an understanding of their everyday experiences and knowledge, adjust their teaching to different kinds of knowledge, and identify when to use them as resources during lessons, the study is highly relevant for my study.

Finally, in a well-cited ethnographic study, Moje et al. (2004) explored literacy practices in science from a predominantly Latino community in a public lower-secondary school in Detroit, Michigan. The study is particularly relevant because it reveals the significance of how students’ multiple FoK are mediated through an attendant discourse or “ways of being, talking, and writing that must occur in the right places, the right times and the right ways” (Barton & Tan, 2009, p. 52). The findings show that students often used a variety of FoK as resources for meaning-making of new scientific concepts; however, they had to be invited to talk about their experiences. In addition, the findings also reveal that teachers must develop deep understandings of the particular FoK that their students have available outside of school. Teachers must actively develop opportunities referred to as “third or hybrid spaces” to engage students in experiments, discussions, and reading and writing activities that include the texts and experiences of many different communities. Of particular interest for this study, Moje et al. (2004) demonstrated that the distance between the students’ discourses in content area and out-of-school practices could be understood as an epistemological distance in regard to accountable practices. It is “a question of what counts as knowledge to be organized, predicted, tested, expressed, or explained, and of what counts as warrant for validating claims and expressions” (Moje et al., 2004, p. 65). Thus, the study demonstrated that teachers must actively facilitate opportunities for students to utilize their everyday experiences in accountable practices at school and that success or failure could depend on the epistemological distance between what counts as knowledge inside and outside of school. This leads to the other perspective of relevance, NLS, and the consequences of the digital turn for the role of teacher practices.

Studies of “new literacies” have been developed since the early 1990s, with the aim of providing insight into understanding and responding to some of the deep changes

evident during recent decades that have impacted many people's everyday lives and in turn education in most countries (Coiro, Knobel, Lankshear, & Leu, 2008b). Researchers in this area are interested in "anticipat[ing] beyond the present and envisage[ing] how best to educate new in order to enhance learners' capacities for effective meaning-making and communication in the foreseeable future" (Knobel & Lankshear, 2014, p. 5).

Within the NLS focus on teachers' professional development and the digital turn, Knobel and Kalman (2016a) argued that research focusing on improving teachers' digital expertise is a trending international topic. As a consequence, "the academic literature to date has been dominated by 'education technology' accounts of 'upskilling' teachers to use particular digital devices, software programs, apps, or online services and then leaves it to teachers to find things to do with these devices and software in their literacy teaching (Kalman, 2013)" (Knobel & Kalman, 2016a, p. 44). Even though few studies have explored how teacher's frame tasks and facilitate activities with wikis and blogs, a Norwegian study is of particular relevance.

In a project called Tweaking Wikis for Education and Advancement of Knowledge (TWEAK) that explores the teacher's role and the instructional setting of a designed web space, Rasmussen, Lund, and Smørðal (2012) unpacked the mechanisms that create or hamper opportunities for engagement and learning. The study reports on research at two senior high schools in Norway, following two teachers and 60 students while implementing a designed wiki into school subjects such as English as a second language (ESL) and modern history. By combining observations and log data, the study describes wiki use during a nearly one-and-a-half-year observation. To provide opportunities to create new practices in classroom settings, their research demonstrates how the development of new practices depends on both the teachers' and students' appropriation of the new tools and the expansion of existing repertoires; that is, new tasks and new ways of participating in classroom practices. Consequently, the study can serve to illustrate that when social media platforms are brought into existing classroom practices, they challenge and transform the conditions for communicating and learning, highlighting the need for the teacher to create new tasks and new ways of participating within the learning activities. The study displays that teachers often resort to their traditional offline way of working, leaving the online activities for learners to complete on their own (Lund, 2006). Arguing that the lack of teachers' monitoring, overviewing, and following up, individual and collective contributions are problematic since the teachers' presence and participation is vital for learners to progress (Darling Hammond, 1999; Krangle, 2007). Thus, the study calls for more knowledge regarding the role of

teachers and the instructional setting to explore how the use of technology can expand the knowledge and experiences of students' everyday lives in regular educational settings (Lund, 2008; Rasmussen et al., 2012). Moreover, few studies have addressed the challenges concerning the dialectic relationship between personal and collaborative learning, learners' objectives and participation, and the design of pedagogical practices capable of supporting Web 2.0 technologies (Lund & Rasmussen, 2008; Rasmussen et al., 2012; Strømme & Furberg, 2015).

2.5 Summary and my position

The everyday and informal experiences of students can become valuable resources for academic learning practices. However, a review of empirical research also documents the challenges and tensions. The research suggests that teachers will not automatically anticipate and draw on students' various everyday skills, experiences, and knowledge as relevant resources for subject matter. Also, the reviewed studies show the importance of the teacher in supporting, translating, and connecting various experiences, tools, and contributions of students toward more academic learning practices. However, as the review also shows, we need more detailed knowledge about how teacher–student interactions unfold while engaging with connecting everyday and academic learning practices. We need a better understanding of how teachers and students negotiate and co-construct meaning of accountable ways to make use of discursive, digital, and material means, and we need to gain knowledge of how everyday experiences and tools are used as resources for engagement and conceptual understanding.

The meta-review documents the limitations of existing research, consisting mostly of small, single-case intervention studies focusing on student learning. As a result, the review documents the potential of a longitudinal research design that can contribute to the research field with new understanding based on an analysis of social interactions in regular classroom practices. In particular, the reviewed studies document the gaps and demonstrate the potential of studies on the role of teacher practices. Thus, this thesis provides a theoretically informed and empirically grounded description of how teachers anticipate and draw on everyday and informal experiences of students as resources for academic learning in regular classroom practices. This leads to the theoretical premises that form the basis of the current study.

3 Theoretical Perspectives on Learning Activities

To address the objectives of the thesis, some of the premises of the sociocultural and dialogical perspectives that are relevant in relation to this study are discussed. In the following section, I discuss my theoretical and analytical perspective, clarify the unit of analysis, and then show how these perspectives can be of use to examine the dynamics of the research question related to how teachers frame and constitute learning activities by drawing on everyday and informal experiences of students and how they are used as resources for engagement and conceptual understanding in naturally occurring classroom interactions. It starts with an elaboration considering the themes of the two traditions that are regarded as congruent. This is followed by a presentation of the notion of creating intercontextuality and the analytical concepts of framing, positioning, accountability, and recontextualization that are applied in the research. This presentation is made on the basis of the conceptual distinctions that have been significant in the three studies, and it should not be seen as a complete account of sociocultural and dialogical theories.

3.1 Sociocultural and dialogical perspectives on creating Intercontextuality

The theoretical basis of the present study consists of theories within the sociocultural–historical perspective (Cole, 1996; Lave & Wenger, 1991; Säljö, 2000, 2001; Vygotsky, 1986, 1939/1978, 1986; Wells, 1999; Wertsch, 1998) and the dialogic approach to learning (Bakhtin, 1981, 1986; Linell, 1998, 2009; Voloshinov, 1973; Wegerif, 2007; Wertsch, 1998). An important link between these traditions is that they share basic assumptions about an epistemological approach to the study of language, cognition, and meaning making as something cultural and historical. The relationship between the traditions is also seen in the understanding of how knowledge is developed *in practices* and *in interactions* through discourses. Furthermore, both research traditions share the same analytical focus to explore learning activities, which is on the interactions individuals have with other people using various resources and physical tools. Finally, both research traditions build on a mutual view of dialogue as a primary tool for communication and thinking. Consequently, combining sociocultural and dialogic theoretical traditions correspond to the classification of theoretical traditions that have influenced knowledge in the field of educational psychology (Greeno, Collins, & Resnick, 1996; Greeno, & the Middle School Mathematics Through Applications Project Group, 1998). Greeno et al. (1996) claimed that combining these theoretical traditions

resemble situated perspectives. “Analyses of activity in this perspective focus on processes of interaction of individuals with other people and with physical and technological systems” (p. 17). Several research traditions, for example, ethnography, activity theory, sociolinguistics, anthropology, sociology, and situation theory, have contributed to the situated perspective. Considering the importance of exploring the situated local practices to understand activities, the sociocultural perspectives and dialogic approaches to studying language, cognition, and meaning making are appropriate.⁵

How learning contexts can be understood as connected with each other so that learners can use their experience and knowledge as resources in a wide range of relevant future situations is challenged by the contested notion of transfer in sociocultural and dialogic theories of learning (Beach, 1999; Erstad & Sefton-Green, 2013; Perkins & Salomon, 1992). Greeno et al. (1996) claimed that “educators want the knowledge that is acquired in school to apply generally in students’ lives, rather than being limited to the situations of classrooms where it is acquired. That is to say, they want the knowledge to transfer” (p. 21). However, despite its practical significance, transfer has been demanding to construct in research (Barnett & Ceci, 2002; Perkins & Salomon, 1992). As Barnett and Ceci (2002) explained, “There is little agreement in the scholarly community about the nature of transfer, the extent to which it occurs, and the nature of its underlying mechanisms” (p. 612). In particular, the situated perspectives of learning and meaning making, transfer becomes a problematic issue because “many of the resources and supports that occur within a community of practice do not carry over to a different community, and so the problem of transfer becomes one of marshalling the resources needed to be successful in a new environment” (Greeno et al., 1996, p. 24). In addition, the notion of transfer has been criticized by Campione, Shapiro, and Brown (1995), who argued that “*Transfer* is most centrally a theoretical term, and it is not always obvious what its referents are. Nor is it clear that a single theory could exist to cover the range of phenomena to which the term might be, and has been, applied” (p. 35). Still, there has been a renewed interest within NLS (Coiro, Knobel, Lankshear, & Leu, 2008a; Coiro et

⁵ Wegerif (2008) argued that it is problematic to include dialogical perspectives together with sociocultural theories because meaning making is treated fundamentally different, either as a synthesis of different perspectives or as differences. As Wegerif (2008) stated, “dialogic presupposes that meaning arises only in the context of difference, whereas dialectic presupposes that differences are contradictions leading to a movement of overcoming” (p. 359).

al., 2008b) to theoretically explore transfer, or as Gutiérrez (2014) has pointed out, how “learning moves” across intercultural, hybrid, and multimodal practices in which youth engage to create connected learning. This study engages in social practice as a core concept to understand how learning contexts can be framed as opportunities to create connections between them; hence, this study does not address the end points of transfer. Instead, this study sets out to develop an account that brings in social interaction as a starting point, and in so doing, develops a more advanced understanding of how connections or relationships between contexts of learning are constituted in classroom practices.

Engle (2006) developed a situated approach to explaining the transfer of learning, combining analyses of content and contexts. A key claim is that a purely content-oriented analysis is not sufficient for explaining when, why, and how students choose to use something they know as resources in a new context. Engle (2006), claimed that studies on text practices “make a crucially flawed assumption that if participants have the right kind of knowledge at hand and know that it is applicable in a particular context, they are going to use it” (p. 455). Within the sociocultural and dialogic perspective, learning is seen as creating relationships or connections between students’ existing knowledge and new ideas; consequently, learning “involves not just knowing but doing, and that doing inherently involves an exercise of human agency” (Engle, 2006, p. 455). Thus, Beach (1999) discussed the notion of the transfer within socio-cultural perspectives. He claimed that: “learners and social organizations exist in a recursive and mutually constitutive relation to one another across time (...) our experiences of continuity and transformation across time and social situations are functions of neither the individual nor the situation, but rather of their relation,” (Beach, 1999, p. 111-112). Applying the notion of consequential transitions as potential ways of understanding the transfer metaphor, Beach (1999) argued that the concept “involves a developmental change in the relation between an individual and one or more social activities. Transitions are consequential when they are consciously reflected on, often struggled with, and the eventual outcome changes one’s sense of self and social positioning” (p.114). Grounded on these assumptions, Beach argued that each form of transition—lateral, collateral, encompassing, and mediational—“potentially involves the construction of knowledge, identities, and skills, or transformations, rather than the application of something that has been acquired” (Beach, 1999, p. 119). Consequently, to understand transfer within this sociocultural perspective, one has to broaden the scope. This means exploring transfer as continuity and transformation in knowledge, skill, and identity across changing forms of social organization, rather than

as a classic transfer metaphor, and its constructs include a “narrow definition, split agency, difficulty of facilitation, assumption of a static context, a launch model of person-environment relations, and difficulty distinguishing transfer from just plain learning” (Beach, 1999, p. 129).

A basic assumption of sociocultural perspectives is that the process of learning is related to participation in socially constructed practices with the use of particular cultural tools (Cole, 1996; Lave & Wenger, 1991; Rogoff, 2003; Vygotsky, 1978). How socially constructed practices are constituted is therefore fundamental for what is possible to learn and how learners choose to use their existing knowledge and experiences as resources in new relevant contexts. This implies that actions, events, and utterances depend on how the participants negotiate, respond to, and accommodate answering the question “What is that’s going on?” in a situation, which in Goffman’s (1986) terminology means how they frame a situation. Framing implies a definition of a situation that the participants in the situation more or less share with each other (Lantz-Andersson, Linderöth, & Säljö, 2009). Learning is therefore not about internalizing knowledge or a set of predefined skills, but about gaining an understanding of what kind of knowledge and skills are relevant within specific domains defined by a group. Learning can therefore be defined as “becoming attuned to constraints and affordances of activity and becoming centrally involved in the practices of a community” (Gee & Green, 1998, p. 147). Consequently, how students choose to use what they have learned as resources to create connections among them in social interactions can be influenced by how learning and transfer contexts are socially framed (Hartanto & Greeno, 1999; LCHC, 1983). In particular, Engle (2006) argued that transfer is more likely to occur, to the extent that learning and transfer contexts have been framed to create what is called intercontextuality between them. In particular, intercontextuality occurs when learning contexts are created as connected with one another and when the content established during the learning activity is considered relevant and creates relations to the new context. Here, I investigate the idea that intercontextuality is created socially in classroom interactions when teachers and student engage in making connections within and across ideas in the ongoing meaning-making interactions of classroom teaching and learning.

3.2 Intercontextuality and social interaction

The creation of intercontextuality is about sending “learners the message that they are allowed, encouraged, and even responsible for transferring what they know from one context to all others linked with it” (Engle, Nguyen, & Mendelson, 2011, p. 605). In this study, intercontextuality is concerned with the ways in which teachers and students engage in activities, creating connections within and across layers of dialogues, between ideas in the ongoing meaning-making interactions of classroom teaching and learning (Bloome et al., 2009; Engle, 2006; Floriani, 1993; P. Scott et al., 2011).

The concept of intercontextuality is originally a text-based notion and stems from the work of Floriani (1993). She builds on the concept of intertextuality as framed by Bloome and his colleagues (Bloome & Bailey, 1992; Bloome & Egan-Robertson, 1993) and Bakhtin’s notion of language as social activity. From this perspective, intertextuality can be identified in and across the actions of the members as they construct the events of daily life (Gee & Green, 1998, p. 133). Floriani (1993) expanded the notion of intertextuality by proposing what she called “intercontextuality” to describe how interactions were negotiated in classroom dialogues, building on past, previous, and future events to guide participation in learning activities. In an ethnographic study of discourse among students in a sixth-grade classroom, Floriani (1993) observed the relationship between oral and written texts and how students indicated practices used in previous events. However, the notion of intercontextuality will be assigned a wider applicability and a more fundamental position in the sociocultural and the dialogic perspectives of this study. To begin with, I address the notion of context and polycontextual awareness to relate intercontextuality to a global level of classroom practices and student learning trajectories. Next, I present the interactional level, addressing the analytical concepts of recontextualization, framing, positioning and accountability to explore how intercontextuality can be created in classroom interactions.

3.3 Context and polycontextual awareness

Linell (1998) states that there seems to be a tension between two perspectives in theoretical accounts of contexts, “One is that of context as more or less *stable outside environment*, the other is that of contexts as deeply *embedded within discursive activities* and as *emergent* with discourse itself” (p. 134). The former is typical in linguistic semantics emphasizing a dichotomy between text and context, treating the context as something that can be added to the text when interpreted in situ. “Contexts” from the

Latin “con texts” suggests being “with texts”. The other perspective treats contexts as social realities that people construct through interactions (Goodwin & Duranti, 1992; Leander, 2001). In this perspective, the epistemological notion of “context” means “weaving together” (Daniels et al., 2007). According to the classical definition of context by Erickson and Shultz (Erickson & Shultz, 1977, 1981), which builds on work by McDermott (1977) and Mehan (1979),

Contexts can be thought of as not simply given in the physical setting . . . nor in combinations of persons. . . . Rather, contexts are constituted by what people are doing and where they are doing it. . . . Ultimately, social contexts consist of mutually shared and ratified definitions of situation and in the social actions persons take on the basis of these definitions. (Erickson & Shultz, 1977, p. 148)

This means that contexts are not static entities. Rather, they are constructed as social realities (Searle, 1995) by the participants in the social interactions (Duranti & Goodwin, 1992, p. 604). Pea (1987) criticized and further developed the concept of meaning potential by claiming that “contexts are *not* defined in terms of physical features of settings, but in terms of the *meanings* of these settings constructed by the people present” (647). Contexts, therefore, may be viewed as meaning potentials that are intercontextually tied, if and when they are interactionally invoked to reestablish, revise, or modify the texts that were or are being constructed by members (Floriani, 1993, p. 258). Hence, the distinction between meaning potentials and situated meanings is important since it displays how meanings are something negotiated by participants in social interactions.

Given that contexts are viewed as meaning potentials that are intercontextually tied, the role of teaching is to make explicit what is regarded as important and relevant within the accounting practice (Eklund, Mäkitalo, & Säljö, 2011). Even so, activities that take place in institutional contexts are not entirely negotiable due to the institutional norms, values, and certain communicative patterns that to some extent structure meaning making (Bliss, Säljö, & Light, 1999; Lantz-Andersson et al., 2009; Mäkitalo & Säljö, 2002). The more familiar one is with the component in a field of activities, for example, the school context, the easier it is for one to act in it (Säljö, 2000). Given this notion, the school context exposes students to accumulated knowledge that becomes transformed in teacher and student interactions (Ludvigsen, Rasmussen, et al., 2011). This means that negotiating meaning in social interactions might be constrained by social structures and social organizations; that is, according to Goffman (1986), “there is a main activity, a

story line, and that an evidential boundary exists in regard to it” (p. 564). Mäkitalo (2006) argued that what the teacher addresses as accounting practices in disciplinary issues functions as what Buttny (1993) terms a superordinate in relation to students’ obligation to act in a comprehensible and responsible manner in communicative activities. Thus, the layers of ways to engage in accountable manners create opportunities and tensions within and across classroom practices. Lantz-Andersson et al. (2016) concluded that certain aspects in every situation can shape what is said and done while individuals learn through participating in and among different practices. Accordingly, even though the context shapes talk, talk also contributes to shaping the context (Duranti & Goodwin, 1992).

Educational practices in the digital ecologies of the 21st century have to deal with multiple contexts, including spatial, temporal, social, virtual, and cognitive contexts, called polycontextual awareness (Arnesen, Elstad, Salomon, & Vavik, 2016). Arnesen et al. (2016) scrutinized how schools can create polycontextual bridging between the world of youth and school material that enables students to learn in a new digital age. As a consequence, Lund (2016) argued that teachers need to develop a sense of polycontextual awareness as they design “extended learning environments and trajectories where cultural resources and potential polycontextuality form the core of the design together with the learning object” (p.143) This study demonstrated the need for teachers’ framing opportunities to create intercontextuality because students do not automatically connect the different epistemologies; that is, use experience and knowledge from contexts outside of school as resources for creating better understanding of subject matters. Rather, teachers need to elaborate a polycontextual awareness toward students’ learning trajectories.

3.4 Intercontextuality in students’ learning trajectories

The social construction of intercontextuality involves participants’ active contributions to recollections of particular past interactions, on which they build to create new events in the moment (Bloome et al., 2009). Bloome et al. opined that the social construction of intercontextuality involves a *proposal* for connecting a specific set of events and an *acknowledgement* of the proposal by others who must *recognize* the set of events proposed for juxtaposition and the realization of a *social consequence, value, or meaning* of the juxtaposition (2009, p. 331). This means that the teacher must create opportunities to use resources that the students recognize and acknowledge from previous interactions as tools and contexts for present and future activities and interactions. Consequently, creating intercontextuality is a process of appropriating interactions from past contexts to create new structures and orders in both the context of systematic scientific thought and

the richness of everyday referents (Gee & Green, 1998). Furthermore, identity and social relationships are socially constructed into being in the local interactions of the classroom community (Castanheira, Crawford, Dixon, & Green, 2000; Cole, 1996). In this sociocultural framework, to construct intercontextuality is to participate in a social process of assigning meaning to learning opportunities distributed within and across networks of interactions that temporally, spatially, and socially expand the relevance of the lesson.

From sociocultural and dialogical perspectives on learning, temporally, spatially, and socially assigning meaning to learning opportunities can be discussed in relation to the intersecting trajectories of participation. Dreier (1999) developed a systematic approach to the concept of trajectory. From a critical psychology perspective, Dreier focused on how people's participation across multiple contexts is at the core of individual development and that social practices are diverse:

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. If not, a learning trajectory may get lost altogether or the internal continuity of its pursuit may be weakened. Indeed, sometimes a learning trajectory is only remembered and picked up again because present occurrences make us draw a link to it anew. (Dreier, 2003, p. 26)

Consequently, learning trajectories are multiple and disruptive, taking place among so many other activities. Grounded in this perspective, learning trajectories are constituted in structures of social practices as people move within and around in various social contexts of practice. According to Ludvigsen, Rasmussen, et al. (2011), this implies that “social structures do not work in an unidirectional way, but as open-situated practices, where local interaction is what connects the multiple trajectories of participation” (p. 106). By using learning trajectories as a concept of analysis, the studies display both analysis of how particular teacher–student interactions contribute to students' changing patterns of participation and how other learning trajectories that are started outside of school can be picked up and made relevant for learning about different curricular topics in classroom practices.

3.5 Analytical concepts

3.5.1 Framing

First introduced by Bateson (1972), the term “framing” refers to the communicative processes of establishing *meanings* by people present in a social situation (Bateson, 1972; Duranti & Goodwin, 1992; Goffman, 1986; Tannen, 1993). In Goffman’s (1986) analytical perspective, the concept of a frame implies a definition of a situation, which the participants share and most often take for granted. Framing refers to a set of meta-communications for interpreting how participants understand their actions by invoking certain expectations as answers to the question “What is it that is going on here?” (Goffman, 1986, p. 8). Thus, participants produce and construe events, actions, and utterances in line with the way they understand a situation. As a result, framing becomes a resource for giving meaning to what they perceive as relevant.

Given their understanding of what it is that is going on, individuals fit their actions to this understanding and ordinarily find that the ongoing world support this fitting. These organizational premises – sustained both in the mind and in activity – I call the frame of the activity. (Goffman, 1986, p. 247)

From this perspective, the interpretation of a situation is negotiated in interactions. According to Goffman (1986), framing is understood as a dynamic and interactional concept for describing participants’ activities of defining what is going on. Hence, framings create structures for what people think they are doing when they talk to each other; it is thus seen as an interactive activity (Tannen, 1993, p. 6). Criticizing the different interpretations of framing, Goffman (1986) argued that interactional processes of framing should be distinguished from the notion of a “cognitive frame,” which is a knowledge structure that may be cued in a particular situation and guide people’s interpretations of and responses to it (Tannen, 1993; Tannen & Wallat, 1987). Contextual framing is usually initiated in social interactions through meta-communicative signals about the context itself (Tannen, 1993).

As previously mentioned, creating intercontextuality in educational dialogues involves the exercise of human agency; learners must choose to use what they have learned (Engle, 2006). These choices can be influenced by how learning contexts are socially *framed* as being interconnected (Greeno & Van de Sande, 2007; Hatano & Greeno, 1999). A context is framed as being interconnected when “someone uses meta-

communicative signals that help establish what the participants are doing together in it, when and where they are doing it, and how each person is participating in it, thus creating a ‘frame’ in which their activities can be interpreted” (Engle, 2006, p. 456). This study focuses on how teachers frame everyday and informal experience as resources for academic learning, which might imply creating intercontextuality. For this reason, teachers’ framing affects the contexts toward which students orient themselves as relevant sites for using what they have learned. A frame then contributes to structuring people’s interpretations and perceptions of events and actions (Lantz-Andersson, Linderöth, & Säljö, 2009).

In analyzing the role of instruction, sociocultural perspectives provide concepts for understanding how learning unfolds in specific activities and evolves along different timescales, across different settings, and along students’ different learning trajectories (Ludvigsen, 2009). To create intercontextuality, Engle et al. (2011) hypothesized that teachers can set up *expansive* learning contexts as *opportunities* for students to actively build on multiple relevant resources, thus increasing the number of contexts that can become intercontextually linked. Alternatively, teachers can narrowly define contexts in *a bounded manner*, as “individual events within a single location involving a restricted set of participants and topics, and in which learners do not play such a central intellectual role” (Engle et al., 2011, p. 606). Thus, analyzing interactions that create either expansive or bounded framings provides the study with concepts to explore how teaching opens opportunities or poses limitations in contributing to the process of appropriation while constructing intercontextuality in students’ learning trajectories.

3.5.2 Positioning

Additionally, when analyzing teachers’ expansive or bounded framings of interactions, creating intercontextuality involves (as mentioned) the exercise of human agency. Engle (2006) suggested that students can develop competencies to use resources from multiple contexts when *positioned* in activities where they are “framed as an author – rather than simply as a recipient of others’ knowledge” (p. 457). This means that teachers must address students as active contributors to the social construction of meaning, sharing their knowledge and making them accountable for using their thoughts or preliminary understandings as resources for creating new ideas. Being regularly positioned as authors socializes learners into the practice of sharing their ideas, which is a crucial aspect of displaying knowledge in learning contexts (Michaels, O’Connor, et al.,

2008). By exploring the ways that teachers position students in classroom interactions, this study analyzes how these approaches create opportunities and limitations for students in terms of actively contributing what they have learned from past places, times, and people. Consequently, a dialogic relationship exists between the framing of learning activities and the positioning of students. In this study, framing and positioning are employed as analytical tools to explore the intrinsic relationship between teacher–student interactions while constructing intercontextuality in students’ learning trajectories. However, to provide a detailed description of the intrinsic relationship between teacher – student interactions while constructing intercontextuality, I address more dynamic theoretical terms; recontextualizing processes and practices.

3.5.3 Recontextualization

According to Linell (1998) recontextualization practices are more fundamental notions than contextualization practices since meanings are never completely devoid of contexts. While contextualizing means “putting something in a context (or a matrix of contexts) ... recontextualizing [means] moving something from one context into another” (Linell, 1998, p. 141). This means, to investigate how teachers and students create intercontextuality with the everyday and informal experiences and tools available in the situation, involves recontextualizations as sense-making practices; “selected parts of discourses and their meanings in the prior, ‘quoted’ discourse-in-context are used as resources in creating new meaning in the ‘quoting’ text and its communicative contexts” (Linell, 1998, p. 156). For instance, as teachers and students engage in classroom practices, the teachers have to frame selected parts of experiences and concrete objects from everyday and informal practices as resources for engaging students in fitting this part or aspect into new meaning in the academic learning practice. Teachers can frame different aspects of students everyday experiences and knowledge which can be recontextualized, such as “linguistic expressions, concepts and propositions, “facts”, arguments and lines of argumentation, stories, assessments, values and ideologies, knowledge and theoretical constructs, ways of seeing things and acting towards them, ways of thinking and ways of saying things (Linell, 1998, pp. 154-155). Thus, Linell offers a wider perspective on what aspects and how teachers can anticipate and draw on the everyday and informal experiences of students as resources to recontextualize selected parts of experiences towards academic learning. Criticizing linguistic theories of discourse, investigating the “text” itself, Linell (1998) argued that recontextualization is never a pure transfer of a fixed meaning because it involves the transformations of

meanings and meaning potentials across different texts and discourse types. Thus, recontextualization is co-constructed in a dialectical relation.

3.5.4 Accountability

According to Goffman, (1986) a fundamental feature of face-to-face interaction is that people are accountable for their actions. For instance, as teachers and students participate in classroom practices, they have to orientate themselves and learn “the particular accounting practices that actors employ, the forms of talk and ways of acting and making sense that are relevant within such practices” (Mäkitalo, 2003, p. 495). Grounded in this perspective, to be able to act in accountable ways, inheritably entails handling cultural and historical norms and rules established in classroom practices as “a pre-understood reality, a reality already seen as being a reality of a particular kind by the social actors involved in it” (Shotter, 1984, p. 27). As discussed, this study investigates the idea that intercontextuality is socially created in classroom interactions; thus, for participants to engage, this intercontextuality must be acknowledged and recognized as having social significance.

Mäkitalo (2003) claimed that the accountability concept can be traced to research of the notion of accounts applied in various fields of research, such as sociolinguistics, social psychology, communication, and ethnomethodology. Antaki’s (1994) descriptions of the role and nature of accounts as conversational performances demonstrate an analytical focus in studying accounts as linguistic devices. These studies investigate conversational turns, such as “failure events” or “next turn questions,” that constrain or enhance the conversation or focus on accounts that a person produces to handle challenges to his or her behavior, for instance, as explanations (Antaki, 1994). However, according to Mäkitalo (2003), the notion of an account can be applied to all contexts where there is a “gap between action and expectation” (M. B. Scott & Lyman, 1968, p. 46). From this perspective, to be accountable implies knowing in situ how to behave. Accordingly, teachers’ and students’ accounts can be analyzed as intrinsic to the social practices they are engaged in as they speak (Edwards, 1997; Linell, 1998), hence, the classroom practices.

A parallel line of investigation of the concept of accountability in educational settings is found in the American-based research conducted by Michaels, O’Connor, and

Resnick (2008)⁶. This research focused on the central role of particular forms and norms of discourse, named accountable talk (Michaels, O'Connor, et al., 2008; Resnick, 1995). This work has grown out of the emerging interdisciplinary fields of cognitive science, sociocultural psychology, and situated cognition. Criticizing conversation analysis to focus on basic interactional patterns of turn taking to illuminate how learners make themselves accountable in situ, accountable talk grows out of a Vygotskian theoretical framework (Wertsch, 1991). It stresses that the acquisition and use of language transforms student's thinking, "emphasizing "the social formation of mind," that is, the importance of social interaction in the development of individual mental processes" (Michaels, O'Connor, et al., 2008, p. 284). Accountable talk takes into account the sociocultural nature of learning and examines how learning offers students the potential to dialogically create intercontextuality.

Ample research on accountable talk has been done in the content areas of mathematics and science (Chapin, O'Connor, & Anderson, 2009; Resnick, Bill, & Lesgold, 1992; Warren & Rosebery, 1996). Michaels, O'Connor, et al. (2008) suggested that in academically productive classroom talk, three broad dimensions are critical features: accountability to the community, accountability to knowledge, and accountability to accepted standards of reasoning. The three facets of accountable talk—community, knowledge, and reasoning—are analytically separable. "In practice, however, they are inextricably intertwined, interdependent and must co-occur if discourse is to promote academic learning" (O'Connor, Michaels, & Chapin, 2015, p. 112). Thus, applying the three broad dimensions of accountable talk as analytical categories enabled me to analyze how the teachers and students oriented themselves regarding what counted as accurate and relevant in classroom practices. The accountable talk dimensions work together as a conceptual lens to derive meaning from the interaction data; thus, they should not be understood as comprehensive or mutually exclusive categories for analysis.

In summary, to address the objectives of the thesis, some of the premises of the sociocultural and dialogical perspectives that are relevant in relation to this study are discussed. In this study, the concept of intercontextuality is used as the main entry into the analysis of exploring interactions and contexts. In addition, the concepts of framing, positioning, accountability, and recontextualization become analytical tools that mutually

⁶ A very similar kind of productive dialogue is known as exploratory talk in the UK (Barnes, 2008; Mercer, 1995, 2000; Mercer & Wegerif, 1999).

provide opportunities to examine the dynamics of teachers' efforts to create intercontextuality in classroom practices and how students respond to and accommodate the teachers' instructions. The analytical concepts become tools where I as an analyst seek to understand how teachers make use of experiences and concrete objects from everyday and informal practices as resources for academic learning.

4 Research Design and Methodology

This chapter gives an account of the research design and methodology, which forms the basis of the analysis conducted in the three studies. First, the chapter outlines the additional empirical material in the research as a whole. The chapter contains a description of the setting, the context of the filmed sessions, and information about the school, the teachers, the classes, the curricular topics, how they were organized, and an outline of the reasons for choosing the sessions as a point of departure for the analyses in the three studies. Second, I consider methodological issues. I open by giving an account of the research design and reflect upon the process of video-recording classroom interactions. Then, I provide a description of the total data corpus, followed by an account of interaction analysis and the analytical procedures that have been deployed in this thesis. Finally, I reflect upon research credibility. Here, I consider matters such as reliability, validity, and generalizability and reflect upon some ethical considerations.

4.1 Research design and empirical material of the KnowMo project

In this thesis, I report on research conducted within the framework of the research project Knowledge in Motion across Contexts of Learning (KnowMo). Investigating Knowledge Practices In and Out of Schools, which was a 4-year Norwegian research project. The project was active from 2012 to 2017 and was financed by the Norwegian Research Council under the PRAKUT/FINNUT program,⁷ which aimed to study learning in different societal contexts and arenas.

The primary objective of KnowMo was to study the conditions under which learning experiences in out-of-school settings could be made relevant for learning in lower-secondary schools. Educational researchers have documented that many students at this level experience school as disconnected from their everyday lives, lacking relevance and variation (Kunnskapsdepartementet, 2011). One way of accomplishing the dual demands of curriculum requirements and creating relevant learning activities for students is to bring youth experiences and knowledge outside of school into the classrooms. However, little research internationally has had a specific focus on how teachers create opportunities to connect student learning across contexts and in what ways

⁷ KnowMo: Researcher project - PRAKUT. Application Number: ES487925

this strategy will enhance school learning. For that reason, the KnowMo project explored how young people's experiences from outside of school could play a role for increasing motivation and learning outcomes in school. The project investigated students' learning practices at school and in three out-of-school domains: the family, organized sports, and media use.

The research design of the KnowMo project was based on a qualitative, longitudinal fieldwork involving two lower-secondary schools in two different municipalities in a medium-sized community in the southeastern part of Norway. The schools were selected in cooperation with the University of South-Eastern Norway and was chosen based on previous collaboration between the Faculty of Humanities, Sports and Educational Science and several practice schools. The criteria for selection were the size (minimum of 80 students in each grade), experience with integrating ICT in teaching, and communities that differed with respect to the socioeconomic composition of the population. The data collection was conducted over 3 years, enabling the researchers to follow developments over the course of lower-secondary school, from the first semester of eighth grade until the end of 10th grade. The research team coordinated periods of fieldwork in each school per semester, with extensive fieldwork at the beginning of the project and shorter, follow-up periods of work in the later phases, from the spring of 2012 until the spring of 2015. Data were collected from two schools, following 10 teachers, 100 students, and 40 families. In addition, 30 of the selected students were followed in three out-of-school contexts: family, media use, and sports activities (football, handball, and volleyball). The main focal points of the observations, using video recordings and interviews, were to identify, describe, and analyze learning practices in each of the specified domains.

I joined the project as a PhD candidate on July 1, 2012; thus, I participated in planning activities and meetings (called work package 2) during spring 2012. During the project period, I participated in all internal KnowMo research meetings. In addition, I presented data for the national reference group, in parent meetings, and for the partners and participants at the two schools during the project period, and I presenting our findings at an external seminar. Furthermore, I was involved in the design of interview guides for teachers, students, and parents. However, while accepting the PhD position after the project had been running for two semesters, several crucial decisions were made by the research team that affected the current thesis in different ways; for instance, the settings, schools, teachers, and classes were chosen, and the data collection was planned in different periods. Each researcher was given a specific responsibility for a domain to plan,

coordinate, and contribute in all activities. The domains were family, media use, sport, and schools, and I had the main responsibility for one of the schools, here called Soerlia. Within the presented framework of the KnowMo project, this study contributes to exploring how teachers anticipate and draw on everyday and informal experiences of students as resources for learning about curricular topics in classroom practices at Soerlia lower-secondary school.

4.2 Research design

The research design of this thesis is based on qualitative, longitudinal fieldwork at Soerlia lower-secondary school. I followed four teachers in two classes over the course of lower-secondary school, from the spring of eighth grade until summer of 10th grade. However, the extensive data collection involved video recording lessons during ninth grade. In the following section, I describe the empirical setting consisting of the school, teachers, students, and subjects relevant to this thesis.

4.2.1 Empirical setting

The setting of this study is a public, lower-secondary school located in a medium-sized community in southeastern Norway. The facility is the municipality's largest school and has about 450 students allocated in 16 classes with about 50 teachers. Soerlia lower-secondary school is close to a forest on the seaside of the Norwegian coastline. The school area includes a youth club, a community hall, and a large sports hall. This attracts youths from the districts to participate in a range of different activities in their leisure time, especially sport activities, such as handball, volleyball, badminton, American football, cheerleading, and table tennis.

Soerlia receives students from four different elementary schools and aims at creating a creative and professional learning environment. Soerlia is a university partner school, participates in a national initiative (The Natural School Bag) to promote sustainable development education, and works with the National Learning Environment Project to promote a good and inclusive learning environment. The school also focuses on increased physical activity and offers morning training and sport activities during the school year. Soerlia has a long tradition of high academic performance, and the school has had the best academic results in the county for a number of years on national tests.

During ninth grade, I observed, interviewed, and video-recorded classroom interactions of four teachers and 52 students divided into two classes, all referenced here by pseudonyms. The first group (9A) included 15 girls and 11 boys, and the second (9B) had 13 boys and 13 girls, all aged 14–15 years. Teachers and students comprised a representative sample of participants in Norwegian society in terms of ethnicity and socioeconomic background. All students lived in the community, while the teachers lived either in Soerlia or in nearby communities. The teachers and students volunteered to participate in the project. In addition, all the parents of the students had to accept their contribution by signing a letter of confidence. The four teachers, two newly educated and two experienced in each of the two classes, represent different teacher roles in the classroom practices.

Teachers ⁸	Subjects	Classes
Wenche Anderson	Science, mathematics	9A and 9B
Ann Benson	Religion and ethics	9B
David Carson	Norwegian, science	9B
Kari Didrikson	Norwegian, social science, and religion and ethics	9A

Table 2: Overview of teachers, subjects and classes at Soerlia

Wenche Anderson

Wenche is a senior teacher who had continually developed her professional competence by attending courses in science and technology at the nearby university and by serving as a supervisor for teacher training students from the same university. Wenche uses a wide range of resources, including traditional textbooks and digital tools such as digital visualization programs in mathematics, wiki blog tools in science, and assessment tools for feedback and summative evaluation of the students during the school year. The typical instructional activities applied by the teacher while working with the students on academic tasks are organized as verbal instructions about scientific phenomena, concepts, or methods; small-group activities, such as laboratory experiments; and project work lasting four to eight weeks. Scientific topics, such as electricity, chemical analysis, or energy, are organized as project work and dived into sections with different assignments, fieldtrips, and opportunities to include the students' everyday knowledge and experiences as resources for educational dialogues and academic meaning making. In Wenche's classroom, the students participate in collective discussions or talk in pairs to share their

⁸ In the Norwegian school system, teachers are called by their first names.

knowledge when discussing scientific phenomena. These planned and organized dialogues seem to provide students with opportunities to communicate their thoughts and create relations between scientific concepts and the teacher's examples of knowledge and experiences from everyday life.

Anne Benson

Anne is also a senior teacher in English language classes, social science, and religion and ethics. As a caring and respected teacher, she has a special way with students struggling with personal, academic, or social issues. Academically Ann is rather traditional, giving her lectures based on her long experience with carefully planned instructions. The typical instructional activities are based on the teacher's wide range of thoughtful examples explicating ongoing religious conflicts, complex political issues, or cases of relevance in the societal debates framed in a calm and historically correct manner, often supported with handwritten notes or background information of the people mentioned. The students listen, and some ask questions for further details. The teacher supports the curriculum with new examples or creates connections to other societal issues and relevant peoples from current everyday situations. However, these lessons are based on the teacher's knowledge and students' recollection of facts produced in individual or collective group work and carefully orchestrated assignments. Ann uses textbooks as her prime resource and supplements her lessons with assignments in the computer room, video clips, or movies as background information or as resources for discussions.

David Carson

David is a newly educated teacher (graduated 2 years ago) whose abilities as a digital gamer and a band player make him an unusual and popular teacher among the youth. The instructional activities that he applied while working with the students on academic tasks included whole-class discussions, individual work with writing activities based on textbooks, and group activities, in which the students produced texts or oral presentations. Topics, such as the grammatical characteristics of writing, studies of fictional and nonfictional texts, and the application of linguistic knowledge and terms in oral discussions, were organized as separate entities in the Norwegian lessons, and textbooks or digital resources were often used to seek information.

During the school year, the young teacher often used his experience and knowledge of playing in a band, digital gaming activities, and interest in youth activities, such as social media, movies, and popular TV series, as situated references when explaining scientific concepts, phenomena in the literature, or multimodal texts. The students were often positioned as participants in these whole-class discussions, in

which the aim of the learning activities tended to be vague and the interactions could be characterized as rather chaotic, forcing the teacher to “hush” the students. The teachers’ unplanned and often intuitive framings of learning opportunities using popular culture or youngsters’ out-of-school experiences as representations seemed to create difficulties and involved engaging with practices with which the teacher had little affinity or expertise. In addition, the teacher’s “fun facts” and “superficial” attempts at connecting with students’ wider lives outside of school did, to a limited extent, create opportunities for the students to use their experience and knowledge as resources for academic learning. The teacher’s vague explication of how the students’ knowledge from popular culture could be relevant resources for meaning making in his classroom practices created only limited opportunities for co-construction among the students.

Kari Didriksen

The teacher, who originally volunteered to participate in the KnowMo project, moved abroad during the first phase of data collection. Kari replaced him and took over the responsibility of his courses and classes. As a newly educated teacher, she was not in the process of volunteering as a teacher from the beginning. I observed and video-recorded 20 lessons of social science and Norwegian during ninth grade. However, I did not use any excerpts from Kari’s lessons in the articles because she did not make use of everyday and informal experiences of students as resources for academic learning during the school year. Based on ethical considerations and anonymity, I will not give any further descriptions of the teacher.

4.3 Reasons for selecting the sessions as the main empirical material

The empirical material in this thesis consists of video recordings of naturally occurring social interactions in two different classes during the ninth-grade school year. This material includes 80 video-recorded lessons, lasting 30 minutes, 60 minutes, or 120 minutes in accordance with the time schedules for different subjects. In all, four teachers participated, one male and three females. From each teacher, the study recorded about 10 lessons in each subject. In the following section, data corpus and empirical contexts from the three studies are outlined. Information about the teachers, the curricular topics, the projects, and how these projects were organized is provided.

4.3.1 Study 1. Data corpus and empirical context

Study 1 is based on the totality of data from the four teachers and the two classes at Soerlia lower-secondary school. The video data corpus was generated over the course of one school year across all subjects the teachers were teaching. In total, 60 hours of video data were collected. Data collection and analytical procedures are described in detail in the article.

Subjects	Video-recorded lessons
Science	30
Mathematics	10
Norwegian Language and Literacy (L1)	10
Religion and ethics	10
In total	60 hours

Table 3: Video recorded lessons during one school year.

To describe and explore how the four teachers' framed opportunities to create intercontextuality in students' learning trajectories, field notes from classroom observations and all video recordings were reviewed to identify episodes where 1) teachers initiated a connection between everyday and scientific knowledge and 2) episodes where the teacher–student interactions generated classroom dialogues. Across subjects, classes, and classrooms, Study 1 documents how teachers initiate opportunities to create connections among everyday experiences and academic learning practices generated through classroom dialogues intended to create intercontextuality in students' learning trajectories. During the introduction phase of the lessons, teachers often (129 episodes) created references to significant topics, activities, or phenomena while initiating exercises, especially in the subjects of science and Norwegian (L2). However, most of these teacher initiations did not generate student involvement that was demonstrated as dialogues. Of the total episodes, only 20 episodes generated dialogues in which students were positioned as active contributors. The episodes where students were made accountable for using their experience and knowledge as resources for academic learning in classroom practices were investigated.

4.3.2 Study 2. Data corpus and empirical context

Case study 2 is based on data from a wiki blog project conducted by the teacher Wenche in the science class 9A. The project was called “Electricity – the roundtrip of the circuits” and aimed to increase students’ interest in electricity by inviting students to share their everyday experiences as relevant resources in the learning activities. Given the project’s digital nature, the teacher anticipated that the students would approach the project using their existing experience and knowledge of wikis and blogs from informal and formal learning contexts.

The wiki project unfolded over 8 weeks with different phases and assignments. Video data was generated from 11 lessons, with 11 hours of footage in total. In addition, the following data material was collected:

Data material	Amount
Pre teacher interview	1
Video records of Electricity Project	11 lessons of 60 minutes each
Students written lab reports from the wiki blogs	338 texts (13 reports * 26 stud)
Field notes	11 documents
Content logs	11 documents
Evaluation of the project in the wiki	1 document

Table 4: Data material from the Electricity Project

Data collection and analytical procedures are described in detail in the article. To explore how teachers and students negotiate and co-construct accountable ways of engaging with a wiki blog as a learning resource, video recordings were watched and scrutinized numerous times to narrow the focus on identifying two key dimensions of variation: episodes in which a) the teacher initiated interactions mentioning the wiki blog as a resource for meaning making and b) the teacher–student interactions generated classroom dialogues. In addition, 338 wiki blogs, field notes, and teacher interviews were reviewed to identify all episodes of interests. Study 2 documented how teacher’s dilemma of whether to encourage new practices (i.e., wiki blogs) created tensions within the institutional framing of schooling.

4.3.3 Study 3. Data corpus and empirical context

Case Study 3 is based on data from science lessons during one academic school year. This study analyzed video recordings of the teacher (Wenche Anderson) and her science class (9A) during four science lessons under the theme “Chemical analysis, its significance and appropriation in everyday life.” The national subject curriculum for natural science defines the aims of this theme as introducing students to learning basic chemistry and conducting laboratory experiments to examine an unknown substance. These lessons were particularly interesting merely because they were the only lessons during one school year, where the teacher proposed an explicit aim to invite students’ experiences from everyday life as relevant resources for investigating an unknown material, thus creating significance and appropriation between everyday and academic learning practices. Data collection and analytical procedures are described in detail in the article.

Time	Assignments	Activities	Resources
Lesson 1 60 minutes	Introduction to chemical analysis. Assignments	Individual work Groups of 4	Textbooks
Lesson 2 120 minutes	Laboratory experiments	Groups of 4 students	Textbooks, Internet resources, lab equipment, salt, and sugar
Lesson 3 60 minutes	Laboratory experiments. Assignments	Groups of 4 students	Textbooks, Internet resources, lab equipment, salt, sugar, and a table of chemical analysis
Lesson 4 120 minutes	Investigation of an unknown material. Summary	Whole class interactions. Talk in pairs	Table of chemical analysis (blackboard). Unknown material

Table 5: Overview of the theme Chemical analysis

To explore how a teacher encourages the use of everyday and informal experiences, field notes from classroom observations and all video recordings of the lessons were reviewed in detail. To identify all cases of interest, the exploration was related to identify episodes where the teacher–student interactions generated a) approaches toward the object and b) dialogues. During a whole class sequence lasting 12 minutes, the teacher–student interactions displayed how the teachers’ framing of students’ everyday knowledge and experience opened and closed opportunities to participate in articulating and recontextualizing meaning potentials while investigating an unknown material.

4.4 Method and data collection

The research design is based on a case study method (Yin, 2006, 2009). Yin (2014) defined a case study as “a study that investigates a contemporary phenomenon in depth and in its real-world context” (p. 237). The case study method can be appropriate for research projects that are informed by either descriptive (what happened) or explanatory research questions (how or why did something happen). Case studies are appropriate to investigate the dynamics present within a single setting and to employ an embedded design with multiple levels of analysis within a single study. This case study consists of three different cases that represent interesting phenomena, which enables me to pursue the main aim of the thesis.

Case studies and ethnography are often considered as being informed by different methodologies. However, Agar claimed, “I think of ethnography as *a kind of logic* rather than any specific method or any particular unit of study. Ethnography names *an epistemology* – a way of knowing and a kind of knowledge that results – rather than a recipe or a particular focus” (Agar, 2006, p.10). I have been inspired by ethnographic principles as my epistemology when collecting data (Green, Skukauskaite, & Baker, 2012; Walford, 2008). An ethnographic approach aims to study the activities under consideration in naturalistic settings, in which participation and observation are seen as essential elements of being a researcher (Wolcott, 1999; Bryman, 2004; Hymes, 1982). I am inspired by ethnographic research (Gee & Green, 1998; S.B Heath, 1982), in the sense that I have collected a rich set of different types of data (See table 6). I have also studied teachers and students in their natural settings during one school year and conducted rich and detailed descriptions of the activities occurring in this natural classroom settings. For that reason, my colleagues and I have collected more types of data than we have made use of in the studies. However, the ethnographic approach of collecting a rich set of data over the course of a longitudinal project gives me the flexibility of later deciding what to use. In all three studies, I have selected and analyzed the types of data I believed answered my research questions.

Type of data	Study 1	Study 2	Study 3
<i>BS = Background Status</i>			
<i>PS = Primary Status</i>			
Video recordings of classroom interactions	PS	PS	PS
Field notes	BS	BS	BS
Content logs	BS	BS	BS
Digital products (338 wiki blogs)	Not collected	Not collected	PS
Teacher interviews	BS	BS	BS
Student artefacts	BS	BS	BS

Table 6: Overview of types and statuses of data collected

4.4.1 Units of analysis

To obtain the empirical material needed to analyze interactions and activities in relation to creating intercontextuality, the teachers and students had to participate in social actions and activities over time. Mercer (2008) claimed that learning in school can only be understood in a long-term trajectory and that more attention “should be given to the temporal dimensions of classroom dialogue both empirically and theoretically” (Mercer, 2008, p. 33). In addition, he criticized methods for analyzing discourse “in which the analyst simply attends to the relationship between the contributions made by participants in one recorded conversation, without applying available information about previous related interactions and historically contextual knowledge shared by the participants” (Mercer, 2008, p. 56). To gain a better understanding of the temporal notions of how teachers and students engage in dialogues and interactions, this study employs a longitudinal research design, in which supplementary empirical material is collected. Thus, the units of analysis are social interactions. The levels of description include the emerging meaning making in teacher–student interactions during one school year. In this way, this study contributes to the educational research field by providing a theoretically informed and empirically grounded description of how teachers anticipate and draw on everyday and informal experiences of students as resources for academic learning in regular classroom practices.

4.4.2 Video-recording classroom interactions

In qualitative educational research, video-recording has been described as a productive approach for collecting rich data on teacher–student interactions in classrooms (Goldman, Pea, Barron, & Derry, 2007). The advantage of video data is that the information enables the study of a phenomenon as it actually happens, in situ (Derry et al., 2010). In addition, video data give access to the rich details of participants’ activities and features, such as how they use artifacts and how they move around and coordinate with each other; these details are often impossible to document in full through other data generated by different versions of self-reporting, such as questionnaires or interviews. The term “naturally occurring” classroom interactions implies that the researcher observed the educational practice without intended interventions (S. B. Heath, Hindmarsh, & Luff, 2010). This means that the observed teachers were not instructed by the researchers to use students’ experiences and knowledge as resources for academic learning practices. To capture these naturally occurring interactions, the study subscribed to the position taken by Jordan and Henderson (1995) when they argued for the complementary use of fieldwork and video documentation. Video recordings provide primary data and work as the foreground in the analytical work in all my studies.

In all three cases, I have video-recorded teacher–student interactions. Video data enables an exploration of actual sequences of talk and interaction of teachers and students, in the setting where the studied activities are carried out (Goodwin, 1994; Heath et al., 2010). This means that the video data enable me to study what teachers and students actually do, how they interact and orient to each other, what resources they interact with, and how they acquire and use the selected aspects of everyday and informal experiences of students as resources for academic learning. The argument for the importance of these detailed studies is informed by the situated and dialogical theories that meanings are interactionally created. The ways in which the teachers and students orient toward each other at the level of utterances (Linell, 1998) implies that I analyzed the consequences of utterances as responsive social actions. “An utterance needs to be crafted to fit the unique circumstances of its performance. It responds to a previous utterance, and in that capacity it shapes the situated sense of what was said, simultaneously it anticipates a response in return and in that capacity it establishes some conditions for the next verbal act” (Aaberg, Mäkitalo, & Säljö, 2010, p. 18).

In all three cases, one camera with a wide-angle lens continuously shot the teacher–student interactions during lessons with little movement of the camera. According to Erickson (2006), “The main advantage of this kind of footage is that it provides a continuous and relatively comprehensive record of social interaction, a document that is to some extent phenomenologically neutral, that is, the video recorder does not think while it records” (p. 177). In addition, when the camera is placed on a tripod, the camera and the operator’s presence are less distracting for the participants in the event being recorded.⁹ Teachers and students seem to become accustomed to the camera after a while (Jordan & Henderson, 1995). Video recording in four differently shaped classrooms created some practical challenges when it came to placing the camera. Since I wanted to capture teacher–student interactions, with a particular focus on the teacher, I intended to place the camera at the back of the classrooms and shoot directly forward with the teacher’s full face in the center of the frame and the back of students’ necks facing the camera. However, in the two classrooms and the computer lab, the physical space was limited. For that reason, I placed the camera halfway along the side of the room, with the teacher and the students shown together in profile. This physical limit was reflected on the tape, as the camera person shooting has a point of view in relation to the interaction it is recording. For instance, when I placed the camera at the back of the science lab, I implicitly constructed teaching as a process in which the teacher is the primary agent and students are relatively passive recipients of the activity of the teacher’s instructions. However, when I placed the camera halfway along the side of the room, with the teacher and the students in profile, I emphasized the mutual relations between the teachers and the students. In addition, since I wanted to capture teacher–student interactions during different types of talk formats, and because the teachers made rounds in the classrooms, I decided to use a camera with two microphones. The teacher was equipped with one omnidirectional wireless microphone, and I placed one omnidirectional table microphone in the middle of the classroom. This enabled me to record all talk created by the teacher and students during classroom interactions.

⁹ This discussion of the researcher’s presence is further elaborated in the section on research ethics 4.6.4.

4.5 Analytical procedures

4.5.1 Interaction analysis

The qualitative data in the current thesis were analyzed using a version of the interaction analysis method used by Jordan and Henderson (1995). Interaction analysis is characterized as an “interdisciplinary method for empirical investigation of the interaction of human beings with each other and with objects of their environment. It investigates human activities, such as talk, nonverbal interaction, and the use of their solution” (Jordan & Henderson, 1995, p. 39). Interaction analysis is suitable for investigating interactions among community members. Since interaction analysis perceives meaning-making and learning as distributed ongoing social processes, this approach was particularly useful for analyzing the video data, allowing me to investigate the teacher’s role in social interactions of regular classroom practices.

To make claims about how teachers make use of everyday and informal experiences of students as resources for academic learning practices, I used a strategy that enabled me to both identify the frequency of the phenomenon and scrutinize the function of resources used in the interactions. For the discovery and analysis of how research data can be derived from video records, I was inspired by Erickson (2006) and his procedures of inductive approaches to analyze interactions. In the first of six steps, he recommended to “review the entire recorded interactional event as a whole, in real time, without stopping the playback, writing the equivalent of field notes as you notice verbal and nonverbal phenomena, using a watch to note times of major transition in activity, or the time code already recorded” (pp. 183-184). In this study, all video recordings were reviewed, and content logs¹⁰ were made—comprising annotations and explications of events from the classroom interactions where references to everyday experience or knowledge were mentioned, indexed by the time stamp on the video tape (Jordan & Henderson, 1995). In the second and third steps, Ericson described a procedure to organize the data by reviewing the entire events again by noting on a time line the occurrence of major shifts in participants and of major topics, activities, or episodes and transcribing on a macro level those of relevance to the research questions. For the purpose of organizing and analyzing my data material, I employed the strategy of thematic coding

¹⁰ An example of a content log is attached in appendix 5.

(Braun & Clarke, 2006). A theme expresses something significant about the data that is relevant to the research questions. This technique supported my selection of episodes of interaction that were particularly relevant to the research questions. Reviewing the video data of 80 lessons—looking for instances which displayed teacher-student interactions while making use of resources from everyday discourses—allowed me to identify the frequency of occurrences while teachers and students engaged in connecting everyday and academic learning practices during regular lessons. In this process, I used the software program NVivo, which allowed me to thematically code classroom interactions across lessons over the academic year. Barab, Hay, and Yamagata-Lynch (2001) used the term “node” to designate units of action-relevant episodes that include persons acting with tools in object-oriented activities. Nodes were made on a macro level and consisted of activities, teachers, students, subjects, and themes. This process resulted in a collection of classroom dialogues that the teachers and students oriented toward; they engaged in interactions in which they attempted to make use of everyday and informal experiences and tools as resources for academic learning.

In the fourth step, Erickson (2006) recommended transcribing all strips of tape that answered the research questions and coding “the functions of certain kinds of utterances, gestures or uses of vocal quality to signal differing kinds of emotional or rhetorical framing” (p. 184). In this phase, I was inspired by Klette (2009) and Barab et al. (2001) and their procedure that “allows researchers to identify relevant data from complex, evolving environment, and then to organize it into a web of action that can illuminate the historical development (evolving trajectory) of the phenomenon of interest” (p. 33). The criteria for selecting episodes for the collection were related to identifying interactions, specifically focusing on episodes 1) in which teachers and students engaged in interactions using everyday and informal experiences and tools as resources for conceptual understanding and 2) in which the teacher–student interactions generated classroom dialogues. All these episodes were transcribed and coded into the NVivo software. The attention was directed at participation in the interactions: how teachers initiated the activities, who followed up, and the ways the students engaged, responded to, and oriented themselves toward the teachers’ framing of activities. This proved productive to the microanalysis because it unveiled the ways in which initiatives were negotiated and distributed among the teachers and students. Although most often the teachers initiated interactions, participation structures and orientations emerged as diverse, contingent on the available resources and the “teaching style.”

In the fifth step, Erickson (2006) recommend viewing sessions with either participants or focus groups. I presented video recordings and transcripts in the KnowMo project, in research groups, and especially in the Network of Interaction Analysis (NIA) at the University of South-Eastern Norway. These sessions have been crucial for discussions and critical analyses of all excerpts in this thesis. Finally, Erickson (2006) claimed that researchers need to determine

the typicality or atypicality of the instances you have transcribed and analyzed in detail – by more general coding, returning into the initial viewing notes as an index to the whole event, or to constituent sections within it. You are interested in internal generalization, determining how representative a transcribed strip form within an event is of the overall patterns of interaction within that event as a whole. This is determination of generalization within the case at hand. (p. 185)

After using thematic coding to create the collection of educational dialogues, I zoomed in on episodes in which teachers initiated interactions where everyday and informal experiences and tools were invited as resources to support students' meaning making and academic learning. In this part of the analytical work, I did not use NVivo. I employed a turn-by-turn analysis of all occurrences in the collections to examine meaning-making as sequentially organized in encounters between interlocutors. This analytical tradition emphasizes the need to examine learning as an interactional achievement in sociocultural practices (Lantz-Andersson et al., 2009; Mäkitalo & Säljö, 2002; Rasmussen et al., 2005; Silseth & Arnseth, 2016). The attention was directed at how meaning is produced in a chain of utterances and events that are sensitive to each other. The analytical focus was on "how participants respond to each other's utterances turn-by-turn when dealing with the topic at hand and, through this process, how they co-construct knowledge and meaning of the situation and topic at hand" (Silseth, 2017, p. 13). I applied the analytical concepts of framing, positioning, accountability, and recontextualization, which I used to investigate how the teachers created interactions to support students through talk and resources. In the turn-by-turn analysis, I examined how the teachers initiated interactions to create intercontextuality through talk, how everyday and informal experiences and tools were framed as relevant resources for recontextualization and meaning making, how students were positioned to participate in the learning activities, and how the dynamics of what is framed as accountable in situ created tensions within the institutional context of classroom practices. Thus, the turn-by-turn analysis enabled me to address issues of

the complexity in situ and what characterized the teacher's role in classroom practices while connecting everyday and academic learning practices. The episodes that were analyzed in detail in the three studies were selected because they represent social interactions where teachers and students make use of everyday and informal experience and tools as resources for academic learning. The transcription signs were taken from Jefferson (2004) classical transcript system. (Attached in appendix 6).

4.6 Research credibility

4.6.1 Reliability

In qualitative research, reliability pertains to the “fit between what the researcher records as data and what actually occurs in the natural setting that is being researched” (Cohen, Manion, & Morrison, 2011, p. 202). As a result, reliability is about consistency and trustworthiness of the research results, interpretations, and claims. Additionally, it deals with replicability: to what extent a finding is “reproducible at other times and by other researchers” (Brinkmann & Kvale, 2015, p. 281). To make the findings reproducible, it is important to minimize “the degree to which the finding is independent of accidental circumstances of the research” (Kirk & Miller, 1986, p. 20). The aim of reliability is to “minimize the errors and biases in a study” (Yin, 2014, p. 49). Therefore, reliability is related to methodological transparency and the quality of data with respect to the phenomenon under investigation (Silverman, 2006, 2014).

The data from video recordings have a strong position with regard to reliability (Peräkylä, 2011). Since the data are captured on reviewable records, they are not dependable on humans as instruments for data production, such as in the case of field notes or interviews. For that reason, Peräkylä (2011) suggested three key aspects to improve reliability in studies of social interaction: the selection of what is recorded, the technical quality of the recordings, and the transcript quality. In this thesis, I have selected episodes based on explicit criteria that are significant for understanding how teachers and students interact. By using a new high-definition video camera with a wide-angle lens and two good quality microphones, placed in the middle of the classroom and on the teacher, I managed to gain high-quality recordings. Finally, by using the standardized system of transcription notation developed by Jefferson (2004), I was able to produce high-quality transcripts of classroom dialogues and interactions. Still, as Peräkylä (2011) highlighted: “Transcription is a skill that can only be acquired through long enough

training” (p. 289). Since I am a beginner, I have been using experienced transcribers to correct all of my transcripts. Of the three studies on which the current thesis is based, the video recordings collected in Study 1 were the most complex to transcribe. The 60 hours of taping resulted in a substantial amount of potential relevant episodes and produced complexity in terms of diverse disciplines with different scientific concepts. Also, having four different teachers with dissimilar ways of organizing interactions and talk with the 52 students created challenges. During this period, I had the opportunity to attend a Conversation Analysis course at U.C. Berkeley. There, I could practice with the leading professor Patricia Badueliqua-Lopez as an expert to discuss how to structure my large amount of data while receiving help to correct transcripts as I played the video and discussed the analysis. In addition, members of the research community¹¹ who are also trained in interaction analysis played a vital role in critically discussing the interpretations of the video data and the process of deciding on which level of detail to present the transcripts. Moreover, after selecting excerpts to be included in the three articles, I retranscribed all excerpts on a detailed level to check the quality of my interpretations and to evaluate the trustworthiness of the decisions I made based on these interpretations.

A study with high reliability presupposes a research design that is transparent in terms of describing how data have been analyzed in a sufficiently detailed manner, and it should be transparent regarding an explicit theoretical stance to guide the analysis (Peräkylä, 2011; Silverman, 2014). By making the coding process and analytical procedures visible, other readers can scrutinize my theoretical and methodological position, as well as the interpretation of the data based on these stances. It also facilitates the possible reproduction of the study. In the empirical context and the methodology, I have made considerable efforts to make the study as transparent as possible with regard to the different stages of the research process. In sum, these strategies have contributed to strengthening the reliability of this study.

¹¹ I am a member of the Network of Interaction Analysis (NIA) at USN and visiting member at MEDIATE at UiO where transcripts and videos were discussed. In addition, my colleague Kenneth Silseth collected data at another school in the KnowMo project, so we had the opportunity to discuss transcripts, details, and interaction analysis.

4.6.2 Validity

In the social sciences, “Validity pertains to the degree that a method investigates what it is intended to investigate” (Brinkmann & Kvale, 2015, p. 282) and whether findings are correctly interpreted (Kirk & Miller, 1986). However, validation “does not belong to a separate stage of an investigation but permeates the entire research process” (Brinkmann & Kvale, 2015, p. 283). Hence, validity is related to the credibility of our interpretations of the data as a continuous process validation.

The three articles presented in this thesis rely on video data capturing naturally occurring interactions and transcripts of this data. Hence, this transparency can reduce the risk of individual bias in the analysis (Heritage & Atkinson, 1984). In addition, other people can examine the episodes I have analyzed and judge the trustworthiness of my interpretations. To strengthen the credibility of my research, I have discussed my video recordings and transcripts of selected episodes when working with video data. In particular, when I have presented my preliminary analysis of the excerpts in different research groups, doctoral courses, international conferences, and seminars, valuable response has been crucial in refining the analysis and broadening my understanding of the complexity of classroom interactions. In addition, the method of interaction analysis is a type of method that is quite transparent since the excerpts are included in the articles. Therefore, the video data and the transcripts enable me to display the grounds of analysis and my interpretations of my findings. However, one of the weaknesses of this kind of detailed study that relies on video recordings and transcripts of talk and interactions is that they are “only snapshots” of the activities (Mercer, Littleton, & Wegerif, 2004). Since I have only selected some episodes from a larger data corpus in relation to the research questions, a major part of the data is not included in the articles. However, I have selected these episodes to illuminate particularly relevant themes regarding my research questions. As a result, other readers can make their own judgments to the extent to which the interpretations of the activities based on the selected episodes are trustworthy.

According to Peräkylä (2011), validity can also be seen as related to the principle of *validation through next turn*. Referring to Sacks, Schegloff, and Jefferson (1974) notion of a *proof procedure*, Peräkylä outlined the methodological transparency of analyzing talk in social interactions. The proof procedure points out that the responses to a particular utterance will show whether the interactants themselves treat the utterance in ways that are in accordance with the analyst’s interpretation. Peräkylä (2011) pointed out

that in the unfolding of an interaction, one utterance is connected to the next utterance through the interlocutors' interpretation of the previous utterance. In other words, each utterance tells us something about how the utterance is picked up and interpreted by speakers. Furthermore, the next turn in an episode of interactions may provide the reader a tool for judging whether the analyst's interpretation is valid or not. Since the analyses in the current thesis are examined in accordance with how utterances respond to each other, the reader can examine the grounds on which I make claims about the analyzed interactions. This strengthens the validity of my claims.

However, a potential threat to validity in studies in which people know that they are being observed is reactivity. Reactivity can be defined as changes in people's behavior due to their awareness of being observed (S. B. Heath et al., 2010). In this study, reactivity can be related to the camera and observer effect while video-recording classroom interactions. During the first weeks of video-recording the teachers and students, the camera and observer effect was evident and discussed. One of the teachers raised relevant questions about whether my presence and video-recording would affect the students' reflections and verbal engagements, especially in lessons introducing themes where student should use their experiences and knowledge as resources for reflections and discussions. Therefore, I did not video-record any lessons in one of the classes the first few weeks; I only observed and made written field notes. However, shortly after those few weeks, the students asked why I did not video-record their lessons when they knew I had video-recorded the other class. Soon, the teachers agreed upon video-recording all lessons, and shortly after that, the students and teachers spoke freely about their everyday reflections, seeming to forget about the camera and my presence as an observer. Several researchers have shown that students become accustomed to being observed (S. B. Heath et al., 2010; Jordan & Henderson, 1995), and since I was present during one school year, it is reasonable to assume that reactivity was not a big threat to the validity of this study.

Finally, validity can also be seen as the *quality of craftsmanship* (Brinkmann & Kvale, 2015). In longitudinal studies inspired by ethnography, it is important to present enough information about the empirical context and methodological considerations to convince the reader of the credibility of the study. Mishler (1990) conceptualized validation as the social construction of knowledge in a discussion of narrative research. "Valid knowledge claims are established in a discourse through which the results of a study come to be viewed as sufficiently trustworthy for other investigators to rely on in

their own work” (Brinkmann & Kvale, 2015, p. 289). In the current thesis, I have provided a detailed description of the particular context and the methodological choices made in all three studies. Therefore, readers are invited to discuss whether these findings are presented in a sufficiently trustworthy manner.

4.6.3 Generalizability

Generalizations in qualitative research refer to analytic generalizations (Brinkmann & Kvale, 2015; Yin, 2014). According to Brinkmann and Kvale (2015), analytical generalizations “involves a reasoned judgement about the extent to which the findings of one study can be used as a guide to what might occur in another situation. It is based on analysis of the similarities and differences of the two situations” (p. 297). If the researcher provides rich contextual descriptions of the research process and strong arguments for the connections and differences of the findings to other situations, attaining an analytical generalization is possible. Moreover, Yin (2014) argued that analytical generalizations “consists of a carefully proposed theoretical statement, theory or theoretical proposition. The generalization can take the form of a lesson learned, working hypothesis, or other principle that is believed to be applicable to other situations” (p. 68). This implies that generalizing from case studies means going beyond the specific case being studied.

However, the probability of generalizing case studies with small samples in qualitative research is part of an ongoing discussion (Silverman, 2014). As Yin (2009) argued, “case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment, does not represent a ‘sample’ and, in doing a case study, your goal will be to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistic generalization)” (p. 15). This means that in this thesis, the analytic generalizations are explored as theoretical suggestions rather than as a specific case per se. In particular, the generic claims are based on my review of previously conducted studies, on the theoretical perspective outlined, and on the findings from the empirical analysis (Yin, 2014). In this thesis, I have provided a rich description of the research design, the process of carrying out the research project, and the analytical procedures. Additionally, the theoretical framework that guides the empirical analysis and how it guides the analysis has been described in detail. Through the review, previous related studies of connecting everyday and academic learning in classroom practices are thoroughly addressed. Finally, I have

discussed the findings generated through empirical analysis in relation to key studies in the field. Therefore, through the accumulation of more case studies over time, each study contributes to the robustness of the findings of these studies.

4.6.4 Ethical considerations

The study followed the Norwegian Research Council's ethical code. The Norwegian Social Science Data Services (NSD) is the Data Protection Official for Research for the KnowMo project. Before I attended the project, the project leader was required to fill out a notification form and send it to NSD because the project aimed to collect, record, and store personal data. The project fulfilled the requirements of the Personal Data Act (Ministry of Justice and Public Security, 2000)¹². When I attended the project, all teachers, students, and parents gave their informed consent regarding participation in the research project. They received a detailed information letter about the project prior to the study's start, and they had to sign a consent form before I could conduct the research. Participation was voluntary, and teachers, students, and parents could withdraw at any time without giving a reason. None of the 52 students and four teachers withdrew from the study.

Prior to video-recording classroom interactions, we informed the teachers and then the two classes of the purpose of the study and what the information would be used for. In the teacher meetings, we explained the methods of the study in detail, that all data would be anonymized when used in articles or at conferences, and that the data would be stored on secure servers. Since the teachers had volunteered to participate, they were especially curious about the use of the video recordings for learning and for further developing their practice. In the meeting with the students, we informed about the methods of the study, that the participation was voluntary, that the students could withdraw from the study at any time during the project, and that all data would be anonymized. I stored all the data on external hard disks in a locked closet and on a locked secure server for the KnowMo project at the University of Oslo. In the process of transcribing the video data, all the researchers in the project shared a common strategy of replacing the names with pseudonyms of schools, teachers, students, and parents. The key for identifying the names was stored separately from the coded data.

¹² Approval for research is attached in Appendix 1.

Using video cameras in educational research has become a common data collection method (Derry et al. 2010; Goldman et al. 2007). Research has shown that people habituate to the camera and the observer over time and that this is especially true when the camera is placed on a tripod and recording is continuous (Jordan & Henderson, 1995). In this study, I spent more than 100 hours in the classrooms, and it is reasonable to assume that the teachers and students became accustomed to the camera during the school year. I did not receive any complaints from either the teachers or the students, and no one articulated any discomfort about my presence. However, in one of the classrooms, each desk had a microphone that students had to use while talking due to a student with hearing disabilities. This made some difficulties to adjust to the digital equipment in the beginning because the teacher needed both a microphone for the classroom's audio system and a wireless microphone for my video camera. Still, when analyzing the classroom interactions in this classroom, the sound and talk was particularly clear, as the students and teacher always talked one at a time and used table microphones in the whole-class interactions.

Still, conducting research in an ethical manner goes beyond carrying out studies in accordance with the Personal Data Act and retrieving consent reports. The ongoing debate about the conditions for participant observation in a society with strong formal regulations of participation in research is interesting. Smette (2015) argued in her dissertation that a distinction between Silverman's (2003) notion of everyday ethics and what Strathern (2000) called formalized ethics is implicit in this debate. The "everyday ethics" characterizes the ethical considerations involved in building field relationships, here illustrated by being an anthropologist:

Everyday ethics is about crafting a persona and identity that will mutually engage both the researcher and the people, without doing damage to either. Then, it is about the continual need for choices, each day. It is about ambiguity, conflicting interests, fine lines, judgements calls and, therefore, about awkward decisions. This means that every research site is different, as is the personal style which every anthropologist brings to the field. (Silverman, 2003, pp. 127–128)

I was a participant observer who video-recorded teacher–student interactions during a school year, and these "everyday ethics" of building relationships and trust were present all the time. In all three studies, I have strived for credibility and to conduct the studies ethically, both in terms of formalized and in everyday ethics.

5 Summary of the Studies

In this chapter, I provide a summary of each of the three studies. The analyses in the three studies have been carried out chronologically. Two of the articles were written together with my supervisors; I am the first author, and I have written the last article by myself.

The first study (Wiig, Silseth, & Erstad, 2017) is explorative in the sense that it investigates all four teachers' ways of framing activities that draw on the everyday and informal experiences of students into academic learning practices during one academic school year. In particular, the study focused on analyzing how teachers make use of students' various everyday experiences and knowledge as resources for creating intercontextuality within and across academic learning activities in different subject domains. The other two studies can be seen as zooming into and deepening the explorations of what was presented in the first study. In Study 2 (Wiig, Wittek, & Erstad, In Press), I analyzed how the dynamics of what was framed as accountable to the community standards of reasoning and accuracy in situ created tensions within the institutional context of classroom practices. Thus, the analysis of how a teacher and students negotiate and co-construct accountable ways of engaging with a wiki blog as a learning resource enabled me to explore how the interlocutors struggled to create intercontextuality. In Study 3 (Wiig, Submitted), I explored in detail how a teacher invited students to share experiences and material mediational means from everyday and informal practices as resources for engaging in academic learning. Here, the meaning of materiality for dialogic interaction enabled me to explore how teacher and students engaged in recontextualizing meaning potentials of material means as ways to create intercontextuality within and across everyday and academic learning practices.

5.1 Study 1

Wiig, C., Silseth, K., & Erstad, O. (2017). Creating intercontextuality in students learning trajectories. Opportunities and difficulties. *Language and Education*, 31(7), 1–17.

The aim of this study was to explore how teachers' framing of learning activities opens and closes opportunities for student to position themselves in response to the teacher's framing and to co-construct meaning (i.e., create intercontextuality). Two research questions guided the analysis: (1) *How do teachers frame opportunities for constructing*

intercontextuality between everyday and scientific ideas when initiating topics in regular lessons? (2) How do the participants position themselves when they interact to create intercontextuality? The data consisted of 80 hours of video recordings and participatory observations of four teachers and two ninth-grade classes (aged 14–15) during one academic school year. In regard to methodology, an interaction analysis of teacher–student talk during initiation of topics was employed.

To address the research questions, the analytical concepts of *framing* (Engle et al., 2011; Goffman, 1986) and *positioning* (Engle, 2006; Greeno, 2006) were used on an interactional level. Our analysis showed that during the introduction phase of the lessons, teachers often created references to significant topics, activities, or phenomena that draw on everyday and informal experience as resources for academic learning while initiating activities. However, it was a rare event when these references generated active student contributions to the construction of meaning by dialogically sharing their ideas. Accordingly, our main findings illustrate that the teachers’ framing of opportunities to create intercontextuality in students’ learning trajectories seldom generated student dialogues in the classroom interactions. Consequently, this study focused on investigating episodes that generated dialogues to explore the ways teachers frame interactions and position students to make them accountable for using their thoughts or preliminary understandings as resources.

The findings show that the teachers’ ways of framing interactions and positioning students were grounded in the teachers’ norms and assumptions. Additionally, the findings reveal that teachers seldom explicitly request examples from the students’ everyday interests or build on their repertoires to position students as responsible and active learners in the dialogical construction of intercontextuality. The results suggest that teachers constructed intercontextuality in regular classroom practices in three ways: (1) by building on student’s authentic experience from everyday life, 2) by making use of recitation and guesswork, and 3) by inviting “surrogates” for students’ authentic experiences and knowledge. Based on the analysis, the findings document that it is a challenge for teachers to explain and make visible the interconnectedness between scientific concepts and students’ multiple cultural experiences in whole-class interactions. Thus, our findings demonstrate what Engle (2006) problematized as a purely content-oriented explanation of intercontextuality that builds on an assumption that learners who have the right kind of knowledge will use it in a new context.

5.2 Study 2

Wiig, C., Wittek, L., & Erstad, O. (In Press). Teachers, tools and accountability. Engaging with a wiki-blog as a learning resource. *Learning, Culture and Social Interaction*. Published online July 22, 2018. <https://doi.org/10.1016/j.lcsi.2018.07.001>

The aim of this study was to analyze how the dynamics of what is framed as being accountable to the community, standards of reasoning, and accuracy in situ create opportunities and tensions within the institutional context of classroom practices. Two interrelated research questions guided the analysis: (1) *How does a teacher frame students' experiences as resources for academic learning activities?* (2) *How do students orient themselves to the teacher's framing and co-construct meaning?* The case was an 8-week science project in a ninth-grade science class. The project used a collaborative wiki blog tool to support the teachers' intentions of engagement and conceptual understanding among students. The data, which consisted of video-recorded whole class interactions throughout the 8 eight weeks of the project (totaling 11 hours of footage from 11 lessons), were subjected to interaction analysis.

To address the research questions, we employed the dimensions of Michaels, O'Connor, and Resnick's (2008) *accountable talk* and Engle's (2006) *framing* to analyze how teacher and students negotiate and co-construct ways of engaging with the wiki blog. The three broad dimensions of accountability to community, accepted standards of reasoning, and knowledge enabled us to analyze how meaning making and learning are negotiated and co-constructed across the layers of institutional practices. Our findings show that the teacher's framing of students' experiences as relevant resources for academic learning activities expands the students' practices and creates tensions within the institutional framing of schooling. The findings document that when a teacher frames a task as part of science teaching, but contextualizes it in everyday and informal experiences, teacher and students struggle to negotiate accountable ways of engaging in the new practice. Thus, the analysis documents the teacher's vital role in explicating, translating, and connecting everyday and academic learning activities within and across the layers of accountable practices. Additionally, when constituting learning activities that build on students' initiative, interest, or choice within a conventional school task, students may not want to renegotiate accountable ways of engaging their playful activities into academic learning activities. Consequently, this study documents that when playful activities are brought into classroom practices that are framed as conventional school

tasks inherently removed from everyday life, the renegotiation of norms and expectations of accountable actions, objects, and contributions in classroom activities function as intermediaries within the layers of accountable practices in the institutional context. Thus, the analysis documents how the wiki blog as a digital resource inscribed with meaning potentials from both everyday and academic learning practices becomes an intermediary in teacher–student interactions. The dynamic framing of interactions with the wiki blog that expands students’ engagement similarly exposes the teacher and students to engage in contradictions, tensions, and breakdowns as forms of double dialogicality (Linell, 1998). Consequently, these tensions and renegotiations of accountable ways of engaging with the wiki blog become a means to create intercontextuality across the layers of accountable practices.

5.3 Study 3

Wiig, C. (Accepted for review). Recontextualising classroom resources. Connecting everyday practices and academic learning. *International Journal of Educational Research*.

The aim of this study was to provide a detailed description of how teachers invite experiences and concrete objects from everyday and informal practices as resources for engaging students in academic learning. Two interrelated research questions guided the exploration: (1) *How does a teacher constitute a material tool as a resource for meaning-making while inviting everyday and scientific practices as resources for academic learning?* (2), *How do students orient themselves to the teacher’s framing and negotiate ways to engage in classroom practices to co-construct meaning?* The data consisted of video recordings of six regular science lessons with the curricular theme “Chemical analysis, its significance and appropriation in everyday life” in a ninth-grade lower-secondary class. Exploring how the teacher constituted a secret powder from her kitchen cupboard as the contextual resource, the study described how the teacher’s framing led to engaging students in articulating their understanding to create intercontextuality.

To address the research questions, I employed the concepts of *framing* (Engle, 2006) and *recontextualization* (Linell, 1998) to investigate how teachers and students engage with discursive and material means on an interactional level of analysis. The findings demonstrate that a secret powder from the teacher’s kitchen cupboard was produced as the context for the school science investigation. The teacher’s

framing of the task as a problem-based mission, expanded students' practices and promoted student engagement. It also illustrates how the material tool opened for sophisticated thinking, which was not possible without the material available. Moreover, the findings show that the mediational means provided students with diverse resources to make use of while recontextualizing meaning into new and more academic learning practices. While the teacher used the senses of sight and taste to call on students' thinking and exploration of the material resource, the findings documents that the context-bound resources reduced the task complexity and opened up the possibility of recontextualizing students' own thinking. The analysis also documents that when the teacher made use of context-dense resources, such as a scientific table at the blackboard that increased the complexity, the students needed different forms of support to recontextualize and make meaning of the mediational means. The findings document that multimodal complexity in the scientific table seemed to privilege academic forms of interaction and engagement. On the other side, the materiality of the unknown white powder seemed to engage students in dialogic interaction. Consequently, the study contributes to the educational research on how teachers make use of students' experiences with material means from everyday and informal practices as resources to engage in recontextualizing these activities into more academic learning practices.

6 Discussion and Concluding Remarks

The thesis began with an overarching aim: to gain knowledge of how teachers frame and constitute learning activities by drawing on the everyday and informal experiences of students and how these experiences are used as resources for engagement and conceptual understanding. To pursue this aim, the ambition has been to study the in situ practices that document how teachers and students engage in and make use of everyday and informal experiences as resources for academic learning. In terms of practical policy, education in the digital age should foster the development of in-depth learning, information management, critical thinking, and the ability to apply everyday and informal experience and knowledge to solve complex and interdisciplinary problems, according to the OECD, (2017) and the Official Norwegian Reports NOU, (2015). While the systematic and empirically grounded description of the three single cases do not permit me to make generalizations, this thesis permits theoretical generalization by challenging the existing ways of conceptualizing and researching how the everyday and informal experiences of students are made use of as resources for learning in regular classroom interactions, thus suggesting alternative conceptualizations. First, the empirical findings are addressed in light of previously conducted studies. Subsequently, methodological and theoretical conceptual contributions are discussed. Finally, I provide a discussion of the implications of the findings.

6.1 Empirical findings and contributions

All three articles in this thesis provide insight into how teachers frame learning activities with discursive, digital, and material semiotic tools that are available in the situation and how students respond to and co-construct meaning of the teachers' framing of accountable knowledge. Study 1 addresses how teachers' ways of inviting everyday and informal experiences as discursive resources open and close opportunities for how students position themselves to create intercontextuality across diverse classroom practices. Study 2 addresses how the dynamics of what a teacher frames as accountable in situ creates opportunities and tensions within the institutional context of classroom practices while making use of digital technology. Study 3 addresses how a teacher invites students to share experiences and material semiotic tools from everyday and informal practices as resources for engaging in academic learning. When seen together, the separate articles provide findings with similarities and variations to be further discussed.

6.1.1 Limited opportunities to draw on everyday experiences

The overall and shared results of the three studies show that in teacher-led whole-class discussions, teachers often refer to and make use of everyday and informal experiences and tools as discursive resources to create connections between everyday and academic practices. However, the findings also documented that tensions and challenges emerge when drawing on experiences, tools, and media practices that are contextualized in everyday experiences and framed differently when it comes to what counts as learning. Findings have shown that teachers dominate classroom talk, leaving limited opportunities for the active use of students' own contributions with everyday and informal experiences and tools. The persistent teacher-led instructions and teacher's talk governing classroom interactions, leaving restricted space for students to contribute their conceptual, discursive, and communicative skills, constrain opportunities for students to actively contribute to building on their own everyday and informal experiences as resources for academic learning. Thus, the role of the teachers practice as *gatekeepers*—to determine which everyday and informal student experiences to use and how to make use of them—creates tensions between and within accountable contributions of situated knowing in classroom practices. In this situation, the findings show that student utterances are often used for “surface knowledge” to help in answering known disciplinary questions, making practical statements, or recalling experiences and knowledge from previous lessons and topics rather than for more time-consuming activities such as elaborating on students' various experiences and connecting them toward more academic learning practices.

Klette et al. (2018) argued that numerous studies have investigated teacher–student talk in classrooms (see, for example Cazden, 1988; Littleton & Howe, 2010b; Mehan, 1979). These studies' findings have shown (1) teacher-led instruction (recitation) and teacher-led whole-class discussions are persistent, (2) teacher talk dominates classroom talk and leaves limited space for student utterances and contributions, and (3) students' statements are most likely to be practical and procedural when students do make contributions and are seldom linked to the cognitive or thematic area at hand (Klette et al., 2018, p. 59). Still, Nordic classrooms display a more mixed picture, as student engagement and student-active ways of working might be key features. The identified differences and ambiguities are supported by Alexander (2008), who stated that Nordic classrooms provide ample opportunities for students to speak out and influence classroom discourse—more so than in other countries. This Norwegian study partly confirms

Alexander's (2008) aspects of Nordic classrooms when focusing on regular classroom interactions but goes further by arguing that it depends on how teachers frame and constitute learning activities as open or closed for student engagement and active ways of participating. For instance, Klette and Ødegaard (2015) explained, "Norwegian classrooms support student questioning and engagement; however, student utterances are often used for practical and procedural purposes rather than for cognitively demanding enquiries" (p. 59). Studies 1 and 2 partly confirm the barriers to positioning students as active contributors of their own learning activities, whereas the three studies combined together go further in producing a set of insights based on the systematic and detailed account of describing teacher–student interactions in regular classroom practices.

6.1.2 What are "everyday resources" in classroom practices?

The analysis of how teachers anticipate and make use of everyday resources enabled me to gain knowledge of different kinds of resources that teachers view as accountable means. The findings from the three studies document that teachers make use of discursive, digital, and material semiotic tools as resources for conceptual understanding in classroom interactions. These findings align and further develop the results from Moje et al. (2004) and Silseth and Erstad (2018), who categorized the everyday and informal resources used in formal institutional school discourses. Moje et al. (2004) identified four categories of everyday FoK that have the potential to be used as resources for learning science. These categories are family, community, peers, and popular culture. While the findings document the potential in students' use of these funds, the teacher's seldom made use of these everyday resources while teaching. Moreover, Silseth and Erstad (2018) were inspired by Moje et al.'s (2004) work and introduced five similar categories that describe which resources teachers consider relevant. These categories are (1) teachers orienting to characteristics of the local community, (2) examples from everyday practices, (3) personal issues, (4) concrete objects, and (5) knowledge from traveling abroad. This study confirms and validates the five categories of resources found in Silseth and Erstad's (2018) study and adds three supplemental perspectives. The findings of Study 1 revealed how teachers make use of popular culture, such as reading crime stories or watching TV series as relevant resources for learning about literacy concepts. Likewise, Study 2 illuminated how the teacher and students negotiate accountable ways of engaging with digital tools, such as a wiki blogs, computers, and mobile phones, and Study 3 addressed the use of material semiotic tools as resources for investigating everyday and academic learning practices.

An interpretation of the identified differences described through these three studies indicates that the various types of everyday resources teachers mobilize in social interactions can be related to *teachers' epistemic agency*. Teachers' epistemic agency can be defined as interactions that contribute to transforming interactional events and instructional practices (Rajala, Kumpulainen, Rainio, Hilppö, & Lipponen, 2016). In this thesis, the findings reveal variances in classroom practices regarding activities building on teachers' preferences and personal experiences in situ and activities building on intensions from disciplinary or curricular discourses. This is supported by Moje et al. (2004) and Silseth and Erstad (2018), who described the kinds of resources teachers view as relevant as "potential activities." In this thesis, I go further by arguing that teachers' epistemic agency potentiality can transform instructional practices toward either intended, planned, or unintended "on the spot" activities that can connect everyday and academic learning practices. After all, in naturally occurring classroom interactions, teachers often make use of personal experiences and preferences in situ rather than deliberate and on the forehand planned disciplinary or curricular discourses to make use of students' contributions in the moment. Thus, the findings in the three articles reveal that teachers' creativity and awareness toward potential resources to support, translate, or connect everyday experiences of students toward academic learning seems to be an essential part of the art of teaching in social practices. The variety of teachers' practices connecting everyday and academic learning suggest differences in teachers' epistemic agency to determine which everyday and academic student experiences have potentiality and how to make use of them in the ongoing sense-making processes.

However, my contribution while exploring how teachers frame learning activities with discursive, digital, and material semiotic tools as resources available in the situation has a slightly different focus than investigating what kinds of resources teachers mobilize when contextualizing teaching. My interest enabled me to explore the social interactions that document an intertwined relationship in how teachers frame learning activities. Thus, the findings enabled me to provide a systematic and detailed account of the situated practices rather than examining the function of the objects. Thus, my findings address how teachers' framing and how students position themselves to co-construct meaning from the framing of accountable knowledge are dynamic features, intrinsically interwoven into situated activities in institutional contexts.

6.1.3 Teachers' struggle to make use of everyday resources

The findings reported in the three articles show little reason to claim that anticipating and drawing on the everyday and informal experiences of students support and engage academic learning *in general*. As established in Study 1, the video recordings illuminated that whole-class introductions are characterized by teacher-led talk that invites students to be active contributors to a limited extent when engaging with their own everyday and informal experience. At an overall level, the findings addressed how teachers framed opportunities (in an expansive or bounded manner) to make use of everyday and informal experiences of students as (1) tools to make use of student's authentic experiences, positioning students as active contributors; (2) resources for disciplinary recitations of authoritative knowledge, offering students opportunities to build on someone else's knowledge; and (3) "surrogate resources," making it difficult for students to recognize "the imagined everyday experience" as a learning resource. Study 2 addressed the teacher's dilemma of framing students' digital engagement in their leisure time as a resource for academic learning, which expands student practices and creates tensions within and across the institutional framing of schooling. Study 3 addressed how a teacher made use of a concrete material from her kitchen cupboard as a contextual resource for a problem-based learning activity. The study illustrates how a teacher invited students to articulate and recontextualize similarities and differences in everyday and academic learning practices. It also illustrated how the material tool opened for sophisticated thinking, which was not possible without the material available. Still, Study 3 also display a tension between context-bound resources, such as the sense of taste and sight, which allowed for exploration and student engagement, and more context-dense resources, such as scientific result table written at the blackboard, which seemed to privilege academic forms of interactions. In conclusion, the overall findings illuminate that the dimension of "everyday resources" seems to challenge and transform the conditions for communicating and learning. The discursive, material and digital tools available in the situation, create new tensions on how to co-construct accountable actions, tools and contributions within the institutional context of schooling. Consequently, the findings highlights the need for the teacher to frame opportunities to create new accountable actions, tools and ways of contributing with everyday experiences and tools as resources for learning in the classroom practices. However, as Lund (2006) found in a digital intervention study, teachers often resort to their traditional way of working, leaving the new activities for learners to complete on their own. This thesis validates Lund's (2006) findings and illustrates that in regular classroom practices teachers seem to resort

to their traditional academic way of working when drawing on the everyday experiences, material and digital tools of students, leaving the activities of connecting these diverse contexts of learning for students to complete on their own. Even so, findings also displays that when the instructional setting is organized differently, in projects or as problem-based tasks (for instance in Study 2 and 3), teachers seek to provide opportunities to create new practices, expanding the experiences of students' everyday lives in academic classroom practices. Consequently, although drawing on the everyday and informal experiences and tools of students has the potential to be a valuable resource for academic learning, I argue that this potential has to be realized in organizing new classroom practices. The new classroom practices should build on pedagogical methods promoting students' activity and engagement and teachers vital presence to support, translate and connect everyday and academic learning practices in productive ways (Resnick, Asterhan, & Clarke, 2015). In fact, Sfard (2012) argued, "The principle of constructing new knowledge from the old knowledge (. . .) is the single most important principle acknowledged by all teachers and researchers" (p. 5). Even so, the findings documented that teachers struggle to provide students with the tools, methods, space, and time to engage in what Engle (2006) defines as meta-discussions: connecting everyday and academic learning practices to create intercontextuality among them. As a result, parts of teaching practices remain disconnected from the main source of its meaningfulness.

Consequently, the findings partly resemble other research studies that offer criticism of formal education and classroom practices for being disconnected from students' everyday lives (Biesta, 2010; Hull & Schultz, 2002; Ito et al., 2013; Resnick, 1987). One of the major criticisms posed is that the teacher "rarely manages to harness those experiences and agency that learners bring to school from other contexts" (Kumpulainen & Lipponen, 2010, p. 48). In other words, findings of Study 1 suggests that teacher's attempts to incorporate students' outside experiences and knowledge into more academic learning practices tend to fail in exploiting students' own expertise, knowledge, and tools. This has encouraged approaches to learning to either stay disconnected from students' other worlds or to romanticize everyday knowledge, as Gutiérrez (2014) argued, and to "simply use the everyday as a fragile bridge to somewhere else" (p. 53). The identified tensions between connected and disconnected learning activities above are found and accounted for through the three studies, confirming that teachers struggle to include everyday experiences in the layers of interdependent accountable academic learning practices.

6.1.4 Teachers' framing opens and closes student participation opportunities

Here, one of the pedagogical approaches is to gain knowledge of how teachers frame and constitute learning activities by drawing on the everyday and informal experiences of students and how they respond to and co-construct meaning of the teachers' framing of accountable knowledge. The findings across the three studies display that teachers' ways of anticipating and drawing on everyday and informal experiences and tools co-determine the ways students engage with the resources made available and how they orient themselves to the teacher's framing and co-construct meaning. These findings support some of the positive accounts in the discourse of the teacher's role in making use of various resources to frame opportunities to make multiple connections within and among everyday and academic learning practices (Engle, 2006; Erstad, Kumpulainen, Mäkitalo, Schröder, Pruulmann-Vengerfeld, & Johannsdottir, 2016; Reich & Ito, 2017; Sefton-Green & Erstad, 2017).

Engle (2006) argued that specific ways to frame learning activities can be used (expansively or in a bounded manner), thus opening or closing opportunities for students to actively contribute what they know from past times, places, activities, and people. Thus, empirical research suggests it is possible to distinguish the ways of framing learning activities that are more effective from those that are not and thereby determine what type of framing will engage students and enhance understanding to connect learning across contexts. However, in Engle et al. (2011) more recent study,¹³ corresponding conclusions were grounded on design-based tutoring experiments with university students in which framing expansively or in a bounded manner were manipulated and tested by pre/post tests and student surveys. On the contrary, the type of approach in this thesis, with a theoretically informed and detailed empirical account of social interactions in regular classroom practices, could provide a more fine-grained description and could validate the previous findings. When analyzing the collection of regular classroom practices, I chose to organize the findings into four categories. These are divided into two groups: the first three categories express "expanding possibilities," while the last one expresses "bounded

¹³ Engle et al. (2011) developed a design-based approach to experimental design investigating hypothesis about how framing influences transfer. Testing hypothesis about ways of framing contexts to encourage or discourage transfer, the study manipulated aspects of contexts, topics, roles, and setting, such as time, place, and participants. Engle worked at UC Berkeley, GSI, but died in 2013. I have not been able to trace her Framing Transfer Research Group while studying at UC Berkeley, GSI, during 2014–2015.

possibilities.” The primary differences between the categories of expansive and bounded framings are in how inclusive and permeable they are and how they include students as key contributors to the activity. Figure 1 displays the categories.

Expansive framing	Using everyday practices as discursive resources	The framing of teachers’ opens opportunities for students’ to position themselves to harness everyday and informal experiences in the creation of intercontextuality dialogically
	Using digital tools as mediating resources	The teachers’ framing opens opportunities for students’ active engagement but create tensions to negotiate accountable ways to engage with tools, tasks, and contributions to create intercontextuality
	Using material semiotic means as resources for problem based activities	The teachers’ framing conceptualizing materiality opens opportunities for students’ articulation and recontextualization of everyday and informal experiences into more academic learning activities, thus creating intercontextuality dialogically
Bounded framing	Using everyday practices as superficial resources	The framing of teachers closes opportunities for students’ contributions of their own everyday and informal experiences. Teachers’ defining relevance create surrogates for authentic tools, tasks, and contributions to create intercontextuality. Students’ position themselves as passive participants recalling facts or contributions they think teachers want

Fig. 1. Four categories of ways to frame connections between everyday and academic learning practices.

In the following section, I discuss the findings illustrated in each of the categories with key studies to illustrate the variations and complexity.

The first category was developed from findings across the data material, which enabled me to explore episodes where the teachers expansively frame learning activities and where students engage in making sense of new ideas in terms of existing ones to construct intercontextuality in their learning trajectories. Empirical research has documented the potential of making use of students’ everyday and informal experiences in learning activities at school (Dworin, 2006; Lee, 2014; Moje et al., 2004). The findings from Study 1 demonstrated the potential of the teacher’s invitation to engage a student’s interest in reading Dan Brown novels in his leisure time as a resource for introducing writing techniques in a literacy lesson. The teacher’s way of framing whole-class dialogues by making use of the student’s knowledge of Dan Brown’s writing opened up opportunities to explicate the scientific concept of a cliffhanger. Additionally, the teacher extends and reveals the comparison of writing techniques in other popular cultural resources, such as a TV series and his own personal life outside of school, and creates potentiality for making use of these examples as resources for creating relationships

between popular cultural features and literacy subject matter. The findings showed that when students get opportunities to contribute their own experiences and actively build on multiple contexts of concepts, the expansive framing increases the number of contexts that can be intercontextually connected and affects which contexts students orient themselves to as being relevant sites for using what they have learned.

A second category emerged from the findings in the episodes where the teacher expansively framed learning activities: inviting students to share experiences with digital technologies into academic learning practices. The findings revealed that framing and co-construction are accountable practices in situ (i.e., locally and sociohistorically). Thus, the framing of tasks, tools, and contributions created tensions in how teachers and students could bring dispositions and artifacts that reflected their everyday experiences into the layers of socially, disciplinarily, and epistemologically practices in school as the institutional context. The findings in Study 2 documented the double accountability of the teachers' framing that made accountability visible as an institutionally layered and interdependent concept. While the teacher invited students' digital engagement with wiki blogs, mobile phones and computers into science lessons, the teacher simultaneously provided traditional tasks, individual assessment and ways of participating within the learning activities as a traditional school science project of conducting laboratory reports. Consequently, the findings of the mechanisms that hamper or create opportunities for connecting everyday and academic learning practices seems to depend on how teachers' and students' appropriate new activities, tools and extensions of existing repertoires, understood as new accountable practices.

The third category was developed from the findings in the episodes where the teachers expansively framed learning activities, and the framing of a problem-based activity opened up the opportunity for making use of discursive and material semiotic means from everyday and informal practices as resources for engaging in academic learning. The teacher's framing opened up opportunities for students as active contributors in articulating and engaging in recontextualizing conceptual understanding using their own everyday and academic experiences as resources for creating intercontextuality. The findings from Study 3 demonstrated how the teacher's constitution of the meaning of materiality for a problem-based activity led to different and partly conflicting interpretations of everyday and academic learning practices. Thus, the findings showed how inviting students to solve a mission using their diverse and similar interpretations, such as the senses of taste and sight and scientific knowledge from

past and present lessons, resulted in differences in articulation and recontextualization that created new understanding. In addition, the findings documented how the framing of a fictional narrative as the mission of the lesson (i.e., investigating a secret white material from the teacher's kitchen cupboard) was produced as the contextual material resource for a school science investigation. Rajala and Akkerman (2017) criticized dialogical approaches for often overlooking "the materiality of human activity while giving primacy to discursive and semiotic processes" (p. 12). By developing a novel research approach for examining how the material space is appropriated, negotiated, and sometimes contested in dialogic educational interactions, their findings highlighted how differences in social interactions became available for articulation and mutual reflection. Thus, confirming Rajala and Akkerman's (2017) findings that were contextualized during a fieldtrip, this study further develops how the teacher's constitution of materiality seem to allow opportunities for the recontextualization and articulation of accountable actions, tools, and contributions in regular classroom practices.

The last category emerged from findings in the episodes where teachers framed learning activities in a bounded manner, and the framing closed opportunities for students to bring in their everyday and informal experiences to create the connections necessary for productive learning. Students position themselves to the teacher's framing as passive participants recalling facts, building on somebody else's thinking, or with answers they think the teacher wants. When teachers frame the everyday and informal experiences of students as resources for academic learning contexts in bounded manners, the creation of intercontextuality will be discouraged because the contexts are framed with "constricted, impermeable and non-overlapping boundaries" (Engle, 2006, p. 605). Moreover, the results from previous research (see, for example Greeno, 2006; Littleton & Howe, 2010a; Littleton & Mercer, 2013; Resnick et al., 2015) have confirmed that bounded framing of learning contexts introduced as individual events within a single location, involving a restricted set of participants and topics, include students as contributors, but they do not play such an important intellectual role in developing rich conceptual understanding.

6.1.5 Accountability – Between teacher control and student agency?

The constitution of the everyday and informal experiences of students as resources for academic learning is not solely dependent on how contexts are framed in an expansive or bounded manner but also depends on teachers' framing of accountable ways of engaging with learning resources. Mäkitalo (2003) argued that accountable practices can be studied as "elements of situated knowing in practice" (p. 496). This implies that when teachers invite students to share their everyday experiences as discursive and material resources for educational purposes, the discrepancies in the views of learning, or what is considered accountable, and the goals of the different practices implicitly lead to tension and practical challenges. These observations are significant in the sense that the proponents for mobilizing the experiences of students as resources for academic understanding commonly claim that such resources contribute to authenticity, engagement, and deep learning in students' trajectories of learning (Official Norwegian Reports NOU, 2015). However, this study adds to the research field by documenting the teacher's dilemma of framing student experiences as accountable resources for academic learning, which expand student practices and create tension. These findings correspond with the perspective from Rajala, Kumpulainen, Rainio, et al. (2016) that sees a contradiction between agency and control: "Teachers aspiring to foster student agency can experience tensions between the aspirations of dialogic teaching and the societal demand for the transmission of curricular knowledge" (p. 17). The findings of this study illuminate the contradiction between students' agency (i.e., how teachers need to balance their support to position students as active contributors of their own meaning making) and teachers' social control of students to engage in accountable ways within the institutional demands for promoting curricular knowledge. The results show that when the teacher frames students' digital experiences and engagements as part of disciplinary teaching, but contextualizes them in everyday and informal contexts, both teachers and students struggle to negotiate what counts as relevant actions, tools, and contributions across and within the layers of accountable practices. Thus, my findings contribute to the educational research field by presenting a complementary perspective on conceptualizing accountable practices as oppositional to educational design. In part, this study adds to the understanding of what is at stake when everyday learning practices are invited into academic learning practices.

These findings can be connected to the perspectives of Lantz-Andersson et al. (2013) on how students struggle to assign meaning to learning activities that are

introduced as part of existing classroom practices, but contextualized in the everyday and informal experiences of students. The results in Study 2 unpacked the mechanisms that expand and reduce students' opportunities of engaging with everyday and informal experiences as resources for academic learning. The findings showed that learning resources invited by the teachers created tension because the students' playful engagement with digital or material semiotic tools carried meaning potentials grounded in diverse organization and discrepancies in the views of what counts as relevant learning within and across informal and formal learning activities. Consistent with Rogoff et al.'s (2016) perceptions of two distinct paradigms of the organization of informal and formal learning, Study 2 concluded that new practices in classroom interactions depend on both teachers' and students' negotiation and co-construction of accountable ways to engage with new tools, new tasks, and new practices. For that reason, the study contributes a better understanding of the role of teacher practices in handling the double dialogicality of accountability to institutional norms and rules and everyday norms and rules. Consequently, the challenges and tensions that teachers and students encounter demonstrate the importance of the role of teacher practices that support, translate, and promote opportunities to co-construct accountable forms of engagement to social, epistemological, and disciplinary dimensions.

6.1.6 The meaning of materiality for recontextualizing

The framing of learning activities with material semiotic tools can provide opportunities for students to reason and recontextualize everyday experiences into new meaning in sophisticated ways. The findings in Study 3 documented that the teacher's framing and constitution of problem-based learning activities open opportunities for students to articulate and recontextualize similarities and differences within and across everyday and academic learning practices. For instance, the teacher's constitution of the meaning of materiality made the secret material from her kitchen cupboard serve as a tool for thinking in ways not possible without the material. Here, sight and taste functioned as context-bound resources, which helped the students engage in activities where the teacher could reduce the complexity of the task by using resources from their everyday and informal experiences to articulate and think anew within an academic science practice. Hence, using parts of students' arguments and their ways of explicating and reflecting on the differences between utility and the significance of everyday resources, the teacher created opportunities to recontextualize the ways of thinking and allowed for sense-making

processes. The teacher also invited more context-dense resources when she used the blackboard with a scientific result table of chemical analysis as a new contextual resource. The findings showed that the teacher promoted opportunities for students to talk through earlier experiences of scientific reasoning, thereby creating continuities toward more content-level learning activities. However, the engagement with the context-dense result table at the blackboard appeared to hamper some students' ways of using the contextual resource to move within and across everyday and scientific conceptual understanding. After all, the findings seem to correspond to Sfard (2012), stating that "unlike object-level learning, which consists in production of narratives that are logical derivatives of those previously endorsed, meta-level learning is supposed to lead to a change that cannot be attained by pure deduction" (p. 6). Thus, Study 3 provides detailed descriptions of how a teacher can use everyday and academic practices as resources to open new ways of recontextualizing learning activities, connecting them with each other to trigger learners who need more support to articulate their thinking.

6.2 Methodological and conceptual contributions

Focusing on naturally occurring classroom interactions enabled me to study social interactions in situ. Since previous research consists mostly of small, single-case intervention studies focusing on student learning, a longitudinal research design can contribute to the research field and provide systematic and empirically grounded descriptions of how teachers anticipate and draw on resources for academic learning in regular classroom practices.

Methodologically, the study contributes to the field by presenting an analysis inspired by Engle's (2006) creation of intercontextuality in regular classroom practices. Her goal was "to begin constructing a situative theory of transfer that has sufficient specificity so that it can be used to analyze particular cases of transfer, something that has rarely, if ever, been provided in the literature" (p. 452). By combining Engle's situated conceptualization of the creation of intercontextuality in social interactions with Linell's (1998) dialogic conceptualization of recontextualizing, the study contributes to the field through a theoretically founded framework for analysis that advanced into empirically grounded categories and descriptions over the course of the study.

Conceptualizing Engle's (2006) work from a situated approach into a different context validates and strengthens the robustness of the analytical concepts. Engle (2006) illustrated the explanatory mechanisms of the creation of intercontextuality using a challenging-to-explain case from a group of three fifth graders from a Fostering

Communities of Learners (FCL) classroom (A. Brown & Campione, 1994) in the San Francisco Bay Area during 1995–1996. In contrast, this thesis provides systematic and empirically grounded descriptions of regular lessons of four teachers and 52 students in two ninth-grade classes in Norway during 2013–2014. In this sense, the current thesis makes a methodological contribution related to the explanatory mechanisms of how intercontextuality is created within and across regular classroom practices during a school year by four different teachers in a lower-secondary school in Norway almost 20 years later. Consequently, this thesis contributes with a different context, more participants, various disciplinary subjects, and a particular focus on the teacher’s role during ninth grade. This work validates and strengthens the robustness of Engle’s (2006) analytical concepts of framing and positioning to create intercontextuality in teacher–student interactions.

Applying this longitudinal research design enabled me to describe and explore how teachers frame and make use of the everyday and informal experiences of students as temporal and historical resources. In addition, the longitudinal design empowered me to gain knowledge of the dynamics and tensions within and across layers of accountable practices. Methodologically, my analyses of the dynamics of how teachers and students engage in classroom practices present challenges “because any specific interaction has two aspects; both of which have a temporal quality: a historical aspect and a dynamic aspect” (Mercer, 2008, p. 19). This means that interactions are always situated within a particular institutional context in which the contributors’ relationships also have histories. Thus, the longitudinal design of this study contributes to providing a better understanding of what Mercer called “the shared history of the participants,” “the temporal development of the dialogues,” “the trajectory of the event,” and “the educational outcomes of the events” (Mercer, 2008, p. 182). Following four teachers and 52 students during ninth grade enables me to gain information about the historical and dynamic aspects of teacher–student interactions by observing the participants in lessons, in breaks, and at teacher, student, and parent meetings. In addition, the longitudinal design enabled the video-recording of classroom interactions over time, talking to the participants and interviewing them individually and in groups, and gathering documentary data, such as timetables, teachers’ lesson plans, students’ work, and other relevant artifacts.

The video recordings and analysis of social interactions in classroom practices enabled me to provide detailed and empirically grounded descriptions of how teachers frame and constitute learning activities. In this thesis, a combination of participatory

observations and video recordings provide the study with records of more than 80 lessons, which document “a version of an event as it happens. It provides opportunities to record aspects of social activities in real-time: talk, visible conduct, and the use of tools, technologies, objects and artefacts” (S. B. Heath et al., 2010, pp. 5-6). Thus, the video recording allowed repeated viewing of moments that enabled me to reveal the detailed creation of the social activities of the participants. For that reason, the video recordings and analyses of social interactions provide a more detailed and complex understanding of the activities in play. Through a detailed analysis of teacher–student interactions in different learning activities during a school year, the institutional features that construct tensions and opportunities could be made visible (Goodwin, 1994). As exemplified in Study 2, a detailed, empirically grounded interaction analysis, contributed in expanding our understanding of the double dialogicality of teachers’ instructions and the tensions within and across the layers of accountable practices. This was documented through an analysis of how teachers and students struggled to engage and make meaning of digital tools as resources for meaning making. Consequently, this thesis demonstrates what is gained from studying video-recorded activities taking place in regular classroom practices in detail as they make meaning in social interactions over time.

Similarly, other types of data can also illustrate important aspects of social activities. As documented in Study 2, important insights into how teachers and students engage with wiki blogs as learning resources were examined through a detailed analysis based on video recordings as primary data, supplemented with 358 digital multimodal texts in the wiki. However, my argument is that combining participant observations and video-recorded social interactions as primary data provides a more detailed and complex picture of the activities under consideration than, for instance, text analysis of the end result visible in the written wiki blogs (Jordan & Henderson, 1995).

The sociocultural and dialogical approach enabled me to study the tensions and opportunities in terms of how teachers and students engage in making meaning. The sociocultural and dialogic approach stresses how meaning making is intertwined with interactions and contexts, and in this case, it enabled a detailed exploration of how actions, tools, and contributions were interpreted, negotiated, and recontextualized. Thus, this approach has contributed to displaying some limitations of Engle’s (2006) situated theory of creating intercontextuality. Thus, by applying a sociocultural and dialogical approach, this study enabled me to expand our knowledge of how meaning making and thus the creation of intercontextuality in naturally occurring classroom practices are

highly dependent on the institutional context and how interactions play out with discursive, digital, and material semiotic tools as mediating means for academic learning.

6.3 Implications

The findings of this thesis suggest that an exploration of a broader approach to the idea of connecting everyday and academic learning practices, one that goes beyond the dominant and established design interventions, would help encourage and promote an authentic and accountable conceptualization of how teachers anticipate and draw on the experiences of students as resources for academic learning. This requires the recognition of the diversity of contexts in which teachers and students engage in connecting everyday and academic learning. Finding ways to connect learning practices in a consistent manner closely aligned with the particular characteristics of accountability to social, disciplinary, and epistemological dimensions calls for more research on tensions and challenges, within and across accountable practices. An awareness of the different ways to organize learning activities further challenges educational researchers to investigate the relationships within and among accountable practices as institutionally layered and interdependent. The findings also suggest that it would be beneficial to have more studies of how teachers anticipate and draw on the experiences of students.

6.3.1 Implications for policymakers

This study illustrates a gap between teacher and student practices in regular classroom interactions and policy intentions of “The school of the future” (Official Norwegian Reports NOU, 2015), highlighting the need for in-depth learning, critical thinking, fostering abilities to solve complex and interdisciplinary problems, and making use of students’ everyday and informal experiences and tools as resources for academic learning practices. Connecting everyday and academic learning practices is considered a key tool to create continuities across the many learning contexts that surrounds schools to enable a pedagogy capable of bringing the everyday world into the classroom and contributing to an academically relevant educational practice of the 21st century. However, this study illustrates the prevailing teacher-led whole class interactions with limited opportunities for students to contribute their own everyday experiences and tools and the traditional organization of lessons, curricula, and assessment methods that seems to hinder the creation of opportunities to connect learning across contexts. These challenges, highlights

Lund's (2016) timely question already mentioned in the introduction: "How can schools recognize, open up to, and appropriate out-of-school practices that are constitutive for learning and development?" (p. 130). This study suggests a broadened perspective on the dynamics of accountable practices requires policymakers to question the very concepts that have been introduced as "21st century knowledge." It also requires a recognition by policymakers of alternative approaches in terms of practical policy, organization of schooling, and pedagogical methods. This thesis suggests that a first step is to acknowledging the tensions and discrepancies in the views of learning and the diverse goals of the organization of everyday and academic learning practices. Thus, recognizing the differences calls for more research to support school professionals, educators, and teachers to be better prepared for the potential challenges and tensions within the institutional context of classroom practices.

6.3.2 Implications for school professionals

The findings of this study document that teachers often make use of and draw on various everyday and informal experiences of students; however, they seldom explicate how students' knowledge that is developed in one setting can become a resource in another. In particular, teachers seem to be more preoccupied with utilizing "the everyday" at a content level than with opening "the black box" of the new learning context by making use of meta-level reflections. In particular, teacher's seldom explicate or harness how the new context (in this study, the academic learning context) can be desirable, appropriate, or socially acceptable as a context for connecting and co-constructing new meaning. Thus, students struggle to co-construct meaning and to exploit the experiences and agency that they bring to school. The findings suggest that the problem is not so much to romanticize the use of "the everyday as a bridge to somewhere else," as suggested by Gutiérrez (2014), but it is rather a lack of pedagogical approaches to open up the black box of the new practices, tools and contributions. Thus, inviting students to engage and make use of their expertise, knowledge, and tools that stretch beyond the settings and contexts of schooling itself is a challenging task. This study demonstrates how the development of new accountable practices depends on both how teachers frame and anticipate everyday discourses and concrete resources available in the situation and how students' co-construct and recontextualize meaning potentials into new ideas in academic learning practices. Consequently, developing pedagogical approaches are clearly needed to support teachers' efforts to engage students in connecting everyday and academic learning practices (Bransford et al., 2006). For that

reason, school principals and teachers need to identify and create spaces and time to develop new pedagogical methods for how teachers may frame and constitute everyday and academic learning practices.

Additionally, the study suggests a need for higher education institutions to establish programs developing pedagogical approaches to better exploit the experiences and agency learners bring to school. For instance, within the new five-year Master degree for teachers, the disciplinary subjects, such as pedagogy and practice periods, will benefit from theoretical and practice-related themes on connecting everyday and academic learning to raise the quality of teacher training and better prepare newly qualified teachers for their future jobs. Thus, building on national policy intentions and curricular discourses, teachers at all levels of the educational system need to identify the increased demand for recognizing the impact of everyday and informal experiences as resources for conceptual development in academic learning practices. School professionals need to better understand that everyday knowledge is not simply about recitations of facts, or “presentational” superficial knowledge, but about cognitively demanding enquiries. Yet, the different ways of doing so should be publicly debated, examined, and contested.

6.3.3 Implications for teachers and teacher education

“Improving teachers” has been a trending topic internationally, especially over the past 10 years (Knobel & Kalman, 2016a). National policymakers and international cooperation agencies, such as the World Bank (2012), UNESCO (2015), and OECD (2005), have influenced national governments to invest time and resources in curriculum reform and school reorganization. The findings of this thesis suggest an exploration of these programs to better provide teachers with empirically grounded descriptions of classroom practices, that in turn can enable researchers to construct pedagogical methods to enhance teachers’ and students’ ways of connecting everyday and academic learning practices. For instance, The Norwegian Ministry of Education and Research (2006) has developed a program to create schools where students learn more, called “Promotion of the status and quality of teachers – joint effort for a modern school of knowledge.” From autumn 2015, 5,050 teachers were offered places in courses to ensure that they satisfied the Norwegian qualification requirements. In total, the Norwegian government invested over 1.2 billion NOK in further and continuing education for teachers in 2016. The goal was that the combination of having teachers with strong subject backgrounds,

enterprising school owners, and schools with a culture of sharing would enable students to learn more. So far, little research has documented how these kinds of programs have been enacted as changes into regular classroom practices. The findings of this thesis suggests that it would be beneficial to have more studies grounded in empirical data of classroom practices exploring how new tasks, tools, and practices for framing and anticipating everyday discursive, material, and digital tools of students can be better appropriated as productive resources into the promotion of the modern school of knowledge. Still, how to improve teaching and the status and quality of teachers has by no doubt become one of the more contested debates in Norwegian educational policy and research. Mølstad and Prøitz (2018) indicated that “the policies move back and forth between different parameters for describing teachers and teaching, and as such, teachers must be able to adapt as chameleons in the context of each policy” (p. 1). Still, policies and policymakers acknowledge a high degree of uncertainty about how to prepare students for new work practices, for what counts as knowledge, and what 21st century literacy and numeracy amount to (Ludvigsen, Lund, Rasmussen, & Säljö, 2011a). For that reason alone, more theoretically informed and empirically grounded research on classroom interactions and the role of teacher practices promoting connections among everyday and academic learning practices is necessary.

6.4 Limitations and the need for further research

Before concluding this thesis, the possibilities for future research need to be addressed. Also, by looking back at the choices that were made to improve the understanding of how teachers’ draw on everyday and informal experiences as resources for academic learning, I reflect on how this can be further developed in the future. By doing my systematic review, it is obvious that the field is in progress, and it will be interesting to see how it develops in the near future.

First, it is important to investigate “the everyday practices” of students that teachers frame and constitute as learning resources in classroom practices. Such studies could provide even richer descriptions and better understanding of the differences, similarities, and tensions within and across everyday practices and academic learning practices. Additionally a focus on how the everyday and academic experiences of students are used and made meaning of across contexts, for instance, in leisure activities and school, would enrich the current research on the relationships and contradictions within and between everyday and academic learning practices. Consequently, the main

limitation of this study is that I have not thoroughly investigated “the everyday practices” of students. Choices have to be made when conducting research studies. I chose to focus on classroom interactions and, in particular, the role of teacher’ practices while connecting everyday and academic learning activities because it had not been studied enough and was the topic I found most interesting to explore.

Second, the methodological development of this research field needs to be advanced. This requires an exploration of a broader approach to develop new methods and variations of data sources, including other groups of actors in education, such as parents, administrators, and local authorities, for a more elaborated insight. Even though the study included longitudinal research design and video recordings of more than 80 regular lessons during one school year, more comprehensive observations of other teachers and practices in other situations in classroom practices are needed, including situations in which students are the focus of video and audio recordings. It is also important that the design of such studies includes detailed analyses of social interactions and meaning making within the everyday practices. Additionally, the four teachers in this thesis volunteered to participate in the KnowMo project. However, future researchers should further investigate a broader corpus of teachers before deciding on whom to follow during such a long period as an academic school year. This could provide richer data for exploring how teachers who actually practice the activities use everyday experiences as resources for academic learning practices. Another issue to be addressed in further research is the extent to which the findings of this study are specific to the social setting of a community outside of a larger city center. For instance, studies of “learning lives” approaches (Arnseth & Silseth, 2012; Sefton-Green & Erstad, 2017) and the “Space2cre8” project (Vasbø et al., 2014) in a multiethnic community in Groruddalen, a suburb outside of the capital of Norway, suggest that the boundaries between school and out-of-school experiences are becoming more blurred, particularly when it comes to digital literacy. This study indicates that the boundaries between school and out-of-school practices are significant and that clear divisions exist in the negotiations of accountability as institutionally layered and interdependent. Therefore, future studies might employ a comparative design and analysis to draw attention to how differences in socioeconomic, multicultural, and urban versus non-urban factors may affect how teachers and students negotiate and co-construct accountable ways of engagement.

Third, we need more studies that follow teachers' and students' use of digital technologies as resources for academic learning at schools. Future studies should employ a research design that follows both teachers and students across contexts of learning to explore how digital tools are used and made meaning of within and across these learning contexts. Accordingly, Knobel and Kalman (2016a) argued that taking up digital technologies in classroom practices is part of the current push to improve teachers and to support required changes in education practices to meet the societal demands of the 21st century. Until now, little attention has been given to this digital turn and the varieties of challenges teachers and students face when figuring out what these "necessary changes" might be or how to succeed in negotiating accountable ways of connecting everyday and academic learning practices.

Overall, I hope this thesis will contribute to expanding our knowledge about classroom interactions, and in particular, how teachers' make use of and draw on the various everyday and informal experiences of students as resources for academic learning in regular classroom practices. Moreover, I hope that the thesis will contribute to refining our understanding of the conception of intercontextuality as a part of teaching and learning activities and that the findings will contribute to further research that examine the creation of intercontextuality in regular classroom interactions as social processes of weaving together meaning potentials rather than outcomes. Finally, as illustrated in the short narrative of the introduction of this thesis, I hope the study can contribute to a better understanding of the tensions, dynamics and complexities of utilizing the everyday experiences of students as resources for academic learning activities. To the teachers' in the study: I hope the theoretically informed and empirically grounded descriptions of classroom practices and teaching can help and fulfill some of your longings:

"I wish I knew how to make better and more varied opportunities for them to create connections among their many experiences so that the students experienced my teaching as less disconnected from their everyday life".

(Personal notes after an informal talk with teacher Anderson, October 2013)

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8 Appendices

Appendix 1: Approval for research from Norwegian Social Science Data Services

Norsk samfunnsvitenskapelig datatjeneste AS
NORWEGIAN SOCIAL SCIENCE DATA SERVICES



Ola Erstad
Pedagogisk forskningsinstitutt
Universitetet i Oslo
Postboks 1092 Blindern
0317 OSLO

Harald Hårfages gate 29
N-5007 Bergen
Norway
Tel: +47-55 58 21 17
Fax: +47-55 58 96 50
nsd@nsd.uib.no
www.nsd.uib.no
Org nr. 985 321 884

Vår dato: 20.03.2013

Vår ref:33246 / 3 / AMS

Deres dato:

Deres ref:

TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 07.02.2013. Meldingen gjelder prosjektet:

33246 *Knowledge in Motion across Contexts of Learning (KnowMo)*
Behandlingsansvarlig *Universitetet i Oslo, ved institusjonens øverste leder*
Daglig ansvarlig *Ola Erstad*

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstiller kravene i personopplysningsloven.

Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i melde skjemaet, korrespondanse med ombudet, eventuelle kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema <http://www.nsd.uib.no/personvern/meldeplikt/skjema.html>. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://pvo.nsd.no/prosjekt>.

Personvernombudet vil ved prosjektets avslutning, 30.08.2016, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen


Vigdis Namtvedt Kvalheim


Anne-Mette Somby

Anne-Mette Somby tlf: 55 58 24 10
Vedlegg: Prosjektvurdering

Avdelingskontorer / District Offices

OSLO NSD, Universitetet i Oslo, Postboks 1055 Blindern, 0316 Oslo. Tel: +47-22 85 52 11. nsd@uia.no
TRONDHEIM NSD, Norges teknisk-naturvitenskapelige universitet, 7091 Trondheim. Tel: +47-73 59 19 07. kyma.svarov@vsi.ntnu.no
TROMSØ NSD, SVU, Universitetet i Tromsø, 9037 Tromsø. Tel: +47-77 64 43 36. nsdmar@svu.uit.no

Appendix 2: Information about the KnowMo project.

Letter of consent to video record students sent to parents and students

UiO  Universitetet i Oslo
Det utdanningsvitenskapelige fakultet

Til foresatte og elever på 9. trinn ved xxx ungdomsskole

Oslo, 15. august 2013

Oppdatert informasjon om forskningsprosjektet *Knowledge in Motion*

Denne våren har vi hatt gleden av å følge elevene som fra høsten av begynner i 9B og 9E. Dette har vært en veldig spennende periode. Vi har vært til stede i klasserommet der vi har observert undervisningen, snakket uformelt med elevene og lærerne, og i tillegg tatt enkelte bilder av tekster som elevene har jobbet med eller laget selv.

Både elevene og du/dere som foresatt/e ga i vår samtykke til at vi kunne samle inn denne type data. For bedre å studere og forstå måten elever og lærere snakker sammen om målene for timen, det elevene skal lære og hva elevene allerede kan ønsker vi nå å gjøre lyd og video-opptak av timene.

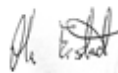
Vi ber derfor med dette skrevet om tillatelse til å video-filme noen av de aktivitetene som lærere og elever deltar i. Denne type data gir oss muligheten til å få detaljerte beskrivelser av hva som skjer i klasserommet, noe som er svært nyttig for prosjektet. **Vi filmer ikke for å vurdere elever, men for å lære mer om hvordan elever og lærere engasjerer seg gjennom samtale som finner sted i klasserommet.** Opptakene vil ikke bli sett av andre enn forskerne i prosjektet.

Som nevnt i det første informasjonsskrivet, ønsker vi også å intervju alle elevene i prosjektet. Dette vil foregå som gruppeintervjuer før høstferien.

For ordens skyld minner vi om at prosjektet avsluttes i 2016. All informasjon som blir samlet inn vil bli lagret på et eget dataområde på Universitetet i Oslo der kun forskerne som deltar i prosjektet har innsyn. Alle papirdata oppbevares nedlåst med samme begrensning i innsyn. Gjennom deltakelse i dette prosjektet har du/dere til enhver tid rett til innsyn i hva slags datamateriale som er samlet inn om ditt/deres barn, og du/dere kan be om at det skal slettes dersom du/dere måtte ønske det. Vi ber om tillatelse til at informasjon som samles inn kan brukes ved forskningsformidling, i form av vitenskapelige artikler eller i forbindelse med foredrag. Det presiseres at datamaterialet kun vil bli presentert i en anonymisert form; skole, lærere og elever anonymiseres alltid. Innen utgangen av 2020 vil datamaterialet bli slettet.

Hvis du vil reservere deg mot at ditt barn blir spurt om å være med på noe av dette, eller dersom barnet ditt selv ikke ønsker å bli spurt om deltagelse, kan du sende en e-post til prosjektleder om dette innen [DATO]. Vi understreker at det ikke har noen konsekvenser for deg/dere som foresatt/e eller for barnet om dere ikke ønsker å delta. Dersom dere har spørsmål, ikke nøl med å ta kontakt med prosjektleder eller en av forskerne i prosjektet på telefon eller e-post. Kontaktinformasjon og presentasjon av forskerne i prosjektet finner du på www.uv.uio.no/pfi/forskning/prosjekter/erstad-knowmo/index.html

Vennlig hilsen|



Professor Ola Erstad
ola.erstad@ped.uio.no
22855216



Postadresse: PB 1161 Blindern, 0318 Oslo
E-post: postmottak@uv.uio.no
www.uv.uio.no

Appendix 3: Information to parents and letter of consent to follow 20 students across school, and 3 leisure activities: family, media and sport.

Til foresatte for xxxx

Oslo, 1. september 2013

Oppfølging av enkelte elever i forskningsprosjektet Knowledge in Motion

Som en del av *Knowledge in Motion* vil vi nå velge ut et mindre antall elever som vil bli intervjuet individuelt flere ganger fram mot avslutningen på 10. trinn. Med dette skrivet ønsker vi å informere om at din sønn/datter er en av elevene vi ønsker å involvere i forskningsprosjektet på denne måten.

Vi har valgt ut om lag en tredjedel av elevene, både på grunnlag av observasjon og gruppeintervjuer tidligere i høst. Elevene som er valgt ut skal representere et mangfold med hensyn til fritidsaktiviteter og mediebruk. Vi vil spørre disse elevene om å få være med enkelte ganger i fritidsaktivitetene de er engasjert i, som organisert idrett, uorganisert idrett og diverse kulturaktiviteter. Noen av elevene ønsker vi også å observere ved bruk av ulike medier, som nettsider, spillaktiviteter og blogg. Dette blir delvis gjort ved elektronisk kommunikasjon med eleven utenom skoletid (mulige kommunikasjonsformer kan være; e-post, chat, skype).

Du/dere som foresatt/e må samtykke til at barnet får lov til å delta i prosjektet på denne måten, men barnet må også gi sitt eget samtykke. Vi vil gjerne at dere snakker om hva det vil si å delta sammen med barnet. Ta gjerne kontakt med en av forskerne om dere har spørsmål. Deltakelsen vil innebære to-tre individuelle intervjuer i løpet av ungdomsskolen og at en forsker er med elevene på to-tre treninger eller andre fritidsaktiviteter inkludert de aktivitetene som enkelte elever gjør på internett i løpet av 9. trinn, og tilsvarende på 10. trinn.

Et viktig mål i prosjektet er å forstå mer om hvordan læring foregår på de ulike arenaene der barn ferdes, også i familien. Vi ønsker derfor også å intervju en eller to av barnets foresatte to ganger – første gang nå i høst og andre gang mot slutten av 10. trinn. Intervjuene vil handle om foresattes synspunkter på læring i skole og fritidskontekster, og på endringer i foreldrerollen i løpet av ungdomsskolen. Intervjuene vil ta en til to timer, og vil foregå i elevenes hjem, evt. på skolen eller andre steder dersom dere ønsker det. Vi vil ta lydopptak av intervjuene. Dersom dere som foresatte ikke har lyst til å bli intervjuet, men har lyst til at barnet skal delta, er det også fullt mulig. Noter i så fall dette på samtykkeskjemaet under.

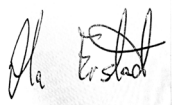
For ordens skyld minner vi om at prosjektet avsluttes i 2016. All informasjon som blir samlet inn vil bli lagret på et eget dataområde på Universitetet i Oslo der kun forskerne som deltar i prosjektet har innsyn. Alle papirdata oppbevares nedlåst med samme begrensning i innsyn. Gjennom deltakelse i dette prosjektet har du/dere til enhver tid rett til innsyn i hva slags datamateriale som er samlet inn om ditt/deres barn, og du/dere kan be om at det skal slettes dersom du/dere måtte ønske det. Vi ber om tillatelse til at informasjon som samles inn kan brukes ved forskningsformidling, i form av vitenskapelige artikler eller i forbindelse med foredrag. Det presiseres at datamaterialet kun vil bli presentert i en anonymisert form; skole, lærere og elever anonymiseres alltid. Innen utgangen av 2020 vil datamaterialet bli slettet.

Dersom dere har spørsmål, ikke nøl med å ta kontakt med prosjektleder eller en av forskerne i prosjektet, på telefon eller e-post. Kontaktinformasjon og presentasjon av forskerne i prosjektet finner du på www.uv.uio.no/pfi/forskning/prosjekter/erstad-knowmo/index.html

Vennlig hilsen



Postadresse: PB 1161 Blindern, 0318 Oslo
E-post: postmottak@uv.uio.no
www.uv.uio.no



Professor Ola Erstad
ola.erstad@ped.uio.no
22855216

Vi bekrefter herved at vår sønn/datter [Navn].....

kan være med på oppfølgingsdelen av forskningsprosjektet Knowledge in Motion.

Foresatte sin underskrift

Elevens underskrift

Telefonnummer og e-postadresse vi kan kontakte dere på:

Andre opplysninger:

Appendix 4: Intervjuguide gruppeintervjuer KnowMo høsten 2013

Introduksjon:

Meningen med dette intervjuet er å få vite hva dere tenker om fritidsaktiviteter og hva dere lærer i fritidsaktiviteter. Vi spør også litt om skolen. Vi har samla dere i grupper der vi antar at noen har felles interesser og kanskje litt forskjellige interesser. I de fleste intervju-situasjonene vil vi være to intervjuere.

Fritidsaktiviteter deskriptivt

- Fortell om fritidsaktiviteter – hva driver dere med? (runde) hva gjør dere? hva er det dere liker med det?
- (Noe om hva de har drevet med og hvorfor de har sluttet?)
- Kjønn: Er det forskjell på hva gutter og jenter driver med? Er det forskjell på hvor mye tid jenter og gutter bruker på fritidsaktiviteter?

Fritidsaktiviteter organisering

- Er alle som er med i fritidsaktiviteter like ivrige?
- Hvem bestemmer hva dere gjør?
- Hva bestemmer dere selv..? er det greit?

Fritidsaktiviteter engasjement

- hva er morsomt?
- Hva er ikke så morsomt?
- Kan dere si litt mer om hva det er som gjør det morsomt?
- Hva syns andre ungdommer om at dere driver med xx?

Fritidsaktiviteter læring

- Lærer man noe gjennom fritidsaktiviteter? Hvilke fritidsaktiviteter er det man lærer noe av?
- **Hva** er det dere lærer i så fall?
- Hva er likt og hva er forskjellig med **måten** man lærer i fritidsaktiviteter og på skolen?
- Tror dere det kommer til nytte andre steder?

Foreldre og fritidsaktiviteter

- Hva tror dere de fleste foreldre vil at barna deres skal drive med på fritiden?
- Er det noe dere tror mange foreldre er skeptiske til at barna deres driver med?
- Er det bra at foreldre er opptatt av fritidsaktiviteter?
- Spør de mye? Hva forteller dere?
- Hvor mye bør foreldre blande seg?
- Hva bør foreldre bestemme? hva bør ungdommer selv bestemme at de skal drive med?

Lærere og fritidsaktiviteter

- Hva synes lærere om ulike fritidsaktiviteter (organisert/uorganisert)
- Tror dere lærere tenker at man lærer noe gjennom fritidsaktiviteter?
- Snakker dere noen gang med lærere om konflikter (tid f eks) mellom skolearbeid og fritidsaktiviteter? Hva sier lærerne da?

Mediespørsmål

- Hvilke type sosiale medier bruker dere i en vanlig skoleuke?
- Hvor ofte ser du på TV med mobil i handa eller PC på fanget?
- Ser dere mest på TV sammen med venner/familie – eller mest alene? (hvilke TV-programmer ser dere alene?)
- Er det noen tv-kanaler eller radiokanaler som dere tenker er laget spesielt for dere (i ungdomsskolen)?

Medier og kunnskap

- Kan noen huske en episode der dere tenkte – oj, dette var interessant – det vil jeg lære mer om – eller at dere lærte noe når dere så noe på nett/TV.
- Kan dere komme på en episode fra klasserommet der noen begynte å snakke om en slik opplevelse?
- I hvilken grad ser dere nyhetsprogrammer på TV?
- Kan dere huske en nyhet som dere så på nett eller TV som skikkelig opprørte dere?
- Hva er nyheter (gjerne fiske litt i hvilke kanaler/plattformer osv)?
 - Er nyheter viktig?
 - Har du selv lagt ut lenker til nyhetssaker på Facebook/twitter o.l.?

Medier og deltagelse

- Dersom vi ikke tar med facebook – er dere inne på et nettsted der dere diskuterer temaer som henger sammen med fritidsinteresser, enten sport eller spill?
- Er det noen som har en rolle som moderator eller en slags ekspert på et slikt nettsted?
 - Har noen laget blogg? – er det noen som opprettholder bloggen etter å ha forsøkt?
 - Hvem bruker Instagram – og på hvilken måte?
 - Vine, snapChat, Tumblr?
 - Er noen på Twitter? – hva er annerledes på Twitter enn facebook?
 - YouTube – hvem har konto – hva legger dere ut – hvor mange følger?

Skole

- Hvilke ulike måte lærer dere på når dere er på skolen?
- Hvilke måter liker dere best å lære på?
- Hva er morsomt på skolen? Hva er ikke så morsomt?
- Hvordan arbeider dere med skolearbeid hjemme?
- Lærer dere på en annen måte når dere arbeider hjemme, sammenlignet med hvordan dere arbeider på skolen?

Skole og foreldre:

- Hvor opptatt er foreldrene deres av hva dere gjør på skolen?
- Hvordan viser foreldre at de bryr seg om skolearbeidet deres?
- Spør de mye? Hva forteller dere?
- Hvor mye bør foreldre blande seg?
- Hva bør foreldre bestemme om hvordan barna deres skal arbeide med skolearbeid? Hva bør barn og ungdom selv bestemme?

Appendix 5: Examples of the coding process in NVivo.

- a) An example of a teacher node regarding what everyday and informal experiences referred to, and the number of occurrences in the data material

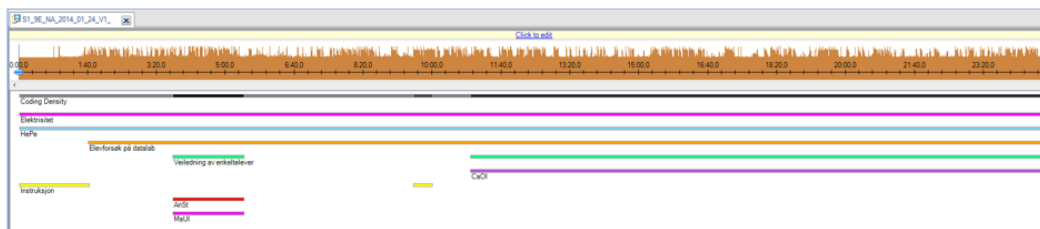
Node	Count
Lærer	0
Ref til elevers ytringer	1
Ref til lokalmiljø	2
Ref. til andre fag	5
Ref. til dagsaktuelle ting	8
Ref. til eget liv	12
Ref. til elevenes familie	5
Ref. til elevenes hverdagsliv	20
Ref. til film, bøker, skuespillere	9
Ref. til tidligere etablert kunnskap	11
Ref. til vurderingskriterier og måloppn	3
Ref. til å bruke elevenes digitalemedie	3

- b) An example from a Content log and coding in NVivo:

14.2 Lesson 2. Wiki-blog, voltage and resistance

Date	Activity	Theme	Room	Time	Data string
24.01	Instruction about how to write a Lab report in the digital Wiki. Writing in the Wiki	Wiki	Computer lab	12 - 13	S1_9E_NA_2014_01_24_C W

The following four Nvivo tables gives an overview of the second lesson about Electricity lasting for 60 minutes altogether. Table 1. The first 25 minutes.



The students are sitting in the computer lab in front of their respective PC. Ordenselever have carried equipment's for lab experiments on Electricity. The teacher introduce the lesson by saying that the aim of the lesson is to finish, repeat and write all 11 lab reports into their own Wiki-blogs. She underlines the possibility to use other students tables and figures in their Wiki-blog in order to develop and improve their own lab reports. After 1.40 min. the students can start their work and the teacher make rounds. CaOl has operated his leg and has not been at school lately. The teacher sit down next to him and do

c) An example from NVivo of an early transcript of teacher – student interactions in a science lesson

1 4.44.0 - 7.49.1 Spennning og strøm ved parallellkopling. Bebe stiller flere spørsmål knyttet til antall pærer og hvorvidt strømmen er bystet. Spennning ved seriekopling av pærer.

2 15.25.0 - 17.46.6 HePe: Så tenker jeg å spørre deg; hjemme, kontakten som er kopla hjemme, hvordan tenker du at de er kopla? Tror du at kontaktnettet hjemme i huset ditt er kopla i serie (.) eller i parallelt?
 MaHa: eh (..) det er kanskje i serie, nei (..) mmm for det blir jo ikke mindre (..) nei for at, det er en av dem så hvis en går så går alle?(..)
 HePe: Jah?
 MaHa: det er serie?
 HePe: Jaa.
 MaHa: da er det vel kanskje parallell?
 HePe: Ja. Ja Ok. Men hvis du også tenker at du tar, på rommet ditt så skal du liksom koppe inn (.) forskjellig utstyr, du skal ha eh (.) laderen til mobilen, [MaHa nikker]- du skal ha iPaden og så skal du ha lampen [MaHa nikker]- og så skal du ha (..) jeg vet ikke, jeg (.) hørforeren din, eller et eller annet. Er det sånn at spenningsen faller jo flere apparater du kopler inn på rommet ditt?
 MaHa: (Stille og ser over PCen) eh.
 HePe: sånn at når du kopler inn en ting til så vil de andre apparatene, atte de vil på en måte virke svakere?
 MaHa: jeg vet egentlig ikke helt. (..)
 HePe: Nei?
 MaHa: Mm (..) jeg har ikke tenkt på det (.) egentlig helt på det sånn?
 HePe: Nei?
 MaHa: Mmm (..) det kan vel egentlig godt hende det? <ser mot Pc-skjermen>
 HePe: Ja, eller hvis du kopler inn støvsugeren og skal støvsuge, så vil hørforeren blike svakere eller svakere? Er det sånn?
 MaHa: Det er vel egentlig ikke.
 HePe: Hvis du kopler inn, har du, når du støvsuger, er det sånn at de andre, eh at lampene liksom på rommet ditt liksom begynner å lyse svakere?
 MaHa: nei, nei!
 HePe: Kan de da være kopla i serie?
 MaHa: nei
 HePe: de kontakten som er hjemme?
 MaHa: nei

3 20.08.1 - 22.26.7 HePe og MaHa snakker om serie og parallellkopling med flere pærer. Helene viser ved å ta på eleven. Han virker avvisende. Ikke holde hånden - sånn, men holde sånn - holder nå skidtene.

The transcript:

HePe: Så tenker jeg å spørre deg; hjemme, kontakten som er kopla hjemme, hvordan tenker du at de er kopla? Tror du at kontaktnettet hjemme i huset ditt er kopla i serie (.) eller i parallelt?
 MaHa: eh (...) der er kanskje i serie, nei (...) mmm for det blir jo ikke mindre (..) nei for at, det er en av dem så hvis en går så går alle?(..)
 HePe: Jah?

Appendix 6: Transcription conventions

<i>Sign</i>	<i>Explanation</i>
<u>word</u>	Underlining indicates emphasis on words and expressions.
[word]	Brackets indicate where overlapping talk starts.
.,!?	Punctuation markers indicate falling or raising intonation.
(turns around)	A sentence that appears within parenthesis indicate explanations of implicit words.
((turns around))	A sentence that appears within double parenthesis describes an action.

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10 Articles

Articles omitted from online edition due to publisher's restrictions

Article I

Wiig, C., Silseth, K., & Erstad, O. (2017). Creating intercontextuality in students learning trajectories. Opportunities and difficulties. *Language and Education*, 31(7), 1–17.
<https://www.tandfonline.com/doi/abs/10.1080/09500782.2017.1367799>

Article II

Wiig, C., Wittek, L., & Erstad, O. (In Press). Teachers, trajectories and accountability. Creating intercontextuality with a wiki-blog as a learning resource. *Learning, Culture and Social Interaction*. Published online July 22, 2018.
<https://www.sciencedirect.com/science/article/pii/S2210656118300138>

Article III

Wiig, C. (Accepted for review). Recontextualizing classroom resources. Connecting everyday and academic learning practices. *International Journal of Educational Research*.

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**Connecting everyday and academic
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