



Book of Abstracts

EARLI SIG 10 & 21 Conference 2018

30–31 August 2018

University of Luxembourg
Campus Belval
MSH | MNO

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KEYNOTES



Prof. Dr. Rebecca Eynon
University of Oxford &
Oxford Internet Institute - OII (UK)

The use of digital trace data to research learning and interaction: a critical perspective

Thursday, August 30th, 09 30 – 10 30
ROOM: MSH – Black Box

The availability and abundance of digital trace data that are produced by people as they learn across a range of digitally mediated settings from in and outside formal education contexts offers some exciting possibilities for researchers. It is hoped that such data will provide novel insights about learning processes and enable new ways of conceptualising how people learn individually and collaboratively across varied cultural contexts. While such work offers much promise, in practice there are a number of philosophical and methodological challenges that need to be explored. Through a critical examination of the work we have carried out at the University of Oxford on collaboration in Massive Open Online Courses (MOOCs), this presentation will discuss these challenges and offer some potential ways to address these issues. These will include the value of multi-level exploration of data, alternative ways of defining the boundaries of the case of interest, the need for multi-disciplinary teams and accounting for key concerns related to ethics, inclusion and exclusion. In doing so, the talk will highlight the extent to which such work represents a continuation or shift in the fundamentals of research in learning and interaction in culturally diverse settings.



Prof. Dr. Kevin Leander
Vanderbilt University, Nashville (US)

Bytes, bodies and bots: Re-thinking (and feeling) agency and activity across digitally mediated setting

Thursday, August 30th, 17 00 – 18 00
ROOM: MSH – Black Box

Digitally-enhanced forms of data collection generate new possibilities for understanding social practices of learning at different scales. Often, problems associated with such data collection and analysis are posed after relevant data is collected (e.g., How to manage large data sets, how to code across modalities, etc.). In this presentation, I return to a perhaps “older” problem of the situatedness of digital data in relation to interactants across online and offline settings. I present two challenges to the problem of situation posed by current research on digital literacies that draws on work in affect theory and the new materialisms, as related developments in post-human theory. First, drawing on affect theory, I critically examine the social semiotic, meditational framing that much of the research on digital media and learning takes up. I reconsider how the situation of digital media research may be re-thought and re-felt as embodied practice—the push and pull of interactants. What new questions are raised when moving, sensing bodies (of the researcher and researched) are taken into consideration? What does current research drop to the cutting room floor? Second, shifting into a consideration of non-human actors, including computational algorithms and bots in social media platforms, I raise questions about how a de-centered social science of learning might proceed, or how our efforts to become more humanizing might require us to become less human-centered.

MASTER CLASSES

Workshop 1: “How to Use Big Video to Study Social Interaction and Learning?”

Paul McIlvenny (Aalborg University, Denmark)

Friday, August 31st, 08 30 – 10 30
MNO 1.010 (MNO Building)

Big Data has recently become the buzzword across many disciplines. As an alternative, this master class will explore Big Video that moves away from quantitative big data analytics in order to develop an enriched infrastructure and workflow for qualitative video analysis with innovation in four key areas:

- 1) capture, storage, archiving and access of digital video;
- 2) visualisation, transformation and presentation;
- 3) collaboration and sharing;
- 4) and qualitative tools to support analysis.

The master class will place Big Video in the context of a critical history of scientific audiovisual technologies, in which we will discuss the assumptions of qualitative video-based research since the 1950s and challenge the ‘black box’ mentality and algorithmic normativity that undergirds data collection in much contemporary research. We will trace a set of tenets for a Big Video Manifesto to rethink epistemological and methodological assumptions and provoke new directions. Finally, current and future trends in Big Video will be illustrated with examples from my own data collection in diverse everyday settings using a variety of new technologies and enhanced methods. The primary focus is on augmenting methods such as ethnomethodological conversation analysis and video ethnography to study social interaction and learning.

Workshop 2: Using trace ethnography of learning to study online social platforms at-scale and in-interaction

Thomas Hillman (University of Gothenburg, Sweden)

Friday, August 31st, 08 30 – 10 30
MNO 1.020 (MNO Building)

As people interact online, the traces they leave drive the digital platforms for social interaction they use. For educational researchers, traces like written documents in classrooms have always been of interest, but unlike these traces, digital traces produced on social platforms like web forums and social media are not secondary sources for the researcher trying to understand learning in interaction. Instead, these traces are the primary interactional means and the means that users, technical platforms and researchers have for making sense of any activity that takes place. However, as social interaction online has expanded and become integral to many facets of life, the availability of trace data has exploded leaving researchers with an interest in understanding interaction on social platforms with massive datasets to handle. This masterclass will offer approaches for collecting and analyzing large amounts of trace data from social platforms to understand learning and knowledge processes, both at-scale and at the level of individual interactions. Topics addressed will include scraping web-forums and collecting data through social media APIs, finding patterns and identifying critical instances through computational content and social network analyses, following topics and participants over time, visualization and trace-interviewing, and ethical concerns of working with trace data.

Workshop 3: The power of learning analytics to unpack learning and teaching: a critical perspective

Bart Rienties (Open University, UK)

Friday, August 31st, 08 30 – 10 30
MNO 1.030 (MNO Building)

Across the globe many educational institutions are collecting vast amounts of small and big data about students and their learning behaviour, such as their class attendance, online activities, or assessment scores. As a result, the emerging field of Learning Analytics (LA) is exploring how data can be used to empower teachers and institutions to effectively support learners. In the recent Innovative Pedagogy Report Ferguson et al. (2017) encourage researchers and practitioners to move towards a new form of learning analytics called student-led learning analytics, which enable learners to specify their own goals and ambitions. They also support learners to reach these goals. This is particularly helpful for individuals who have little time to spare for study. In this EARLI SIG 10-21 Master class, based upon 6 years of experience with LA data and large-scale implementations amongst 450000+ students at a range of context, I will use an interactive format to discuss and debate three major questions:

- 1) To what extent is learning analytics the new holy grail of learning and teaching?
- 2) How can instructional design be optimised using the principles of learning analytics?;
- 3) With the introduction of student-led analytics, to what extent can learning analytics promote 'personalisation' or 'generalisation' for diverse populations of students?

SYMPOSIA

Analysing learning and interaction empirically: sociocultural assumptions

Asa Makitalo (University of Gothenburg, Sweden)

Nathalie Muller Mirza (Université de Lausanne, Switzerland)

Thursday, August 30th, 11 00 – 12 30
MNO 1.010 (MNO Building)

In a sociocultural perspective, learning and development are generally conceived as an integral part of human activity and social interactions. However, scholars in this field do not all share the same theoretical approaches to social interaction and what it implies in studies of learning. There are a number of methodological and epistemological assumptions underpinning different theories to social interaction and learning. Some of these assumptions are relying on what we might term a “factorial conception” and others a “dialogical conception” of social interaction, some are more focused on the verbal dynamics of dialogue while others take a multimodal perspective as their point of departure.

The most salient differences often appear in the methodological choices and treatment of recorded interaction, which show great variation in both the issues examined and the analytic methods that are applied. While many researchers analyse individual acts as contributions to a joint construction of discursive processes and products, other researchers analyse interactions as multi-functional, multi-layered and reflexively interconnected activities embedded in the dynamics of dialogue.

In this symposium, the invited researchers, from their own theoretical approaches to social interaction and learning, will present their research and account for their methodological choice and analytical treatment of data. In the symposium, the question of *consistency* between sociocultural perspectives on learning and methodological choices to grasp interactional and transformative dynamics, will be discussed.

Roger Säljö (University of Gothenburg, Sweden) - Discussant

What do you mean by “interaction”? Some reflections about an evolving concept

Michèle Grossen (University of Lausanne, Switzerland)

Stemming from Vygotsky’s approach on learning and development, the study of social interaction is a core research object in sociocultural psychology. In this field, a central challenge has been to translate some promising theoretical concepts into empirical settings. More precisely, the problem was on the one hand to set up empirical settings in which social interactions (between adult[s] and child[ren], or among peers) could be observed, on the other hand to develop methods that accounted for observations that were often very rich but difficult to objectivise.

Previous research in psychology proved to be unsatisfying to undertake this delicate work, so that researchers in sociocultural psychology had to resort to other disciplinary fields where, for different reasons, analysis of interaction had been developed. In this regard, interactionism in sociology and discourse analysis, in the broad sense of the word, have been fundamental contributions. By venturing into related disciplines, researchers in psychology were encouraged to reflect both on the

theoretical foundations of what they called “interaction”, and on language, a poor relative of psychology. This is to say that the concept of interaction is inseparable from, on the one hand, a theory about the relations between human development and social environment, on the other hand, from a theory of language. This resulted in what could be coined as a new transdisciplinary field at the crossroad of psychology, sociology (interactionism), science of language and communication science.

However, this incursion into related disciplines did not imply that researchers in sociocultural psychology could just “import” methods that were relevant in related fields for a certain research object, and use them for their own purpose. They had to develop methods liable to answer their specific research questions, and also to account for the contextual characteristics of the settings in which individuals interact, two observations that are tightly related to theoretical concerns.

Analysing the evolution of this research field over more than three decades, this paper aims at pointing to some landmarks in the methodological development of interaction analysis as it occurred in the field of sociocultural psychology. Two elements will be put in evidence. The first regards the relation between theory and methodology, and will point to the fact that any method relies on more or less explicit theoretical conceptions about interaction and, more broadly, about language. The second regards the boundaries of an interaction, namely what is (or is not) taken as part of an interaction. Consequently, emphasis will be put on what seems to be an important development of interaction analysis: its dialogical dimension. Borrowed from Bakhtin’s theory of language, the concept of dialogue can be used to account both for dialogues in presence and dialogues with absent third parties. It can also be expanded to the idea that situations enter into dialogues with each other.

This theoretical analysis of a concept (“interaction”) in constant evolution will be illustrated by brief examples taken from various studies carried out by the author or other researchers in sociocultural psychology.

The meaning of materiality for dialogic interaction in a novel educational design

Kristiina Kumpulainen (University of Helsinki, Finland)

Anu Kajamaa (University of Helsinki, Finland)

Antti Rajala (University of Helsinki, Finland)

Jasmiina Korhonen (University of Helsinki, Finland)

Whereas there is a substantial body of literature dealing with dialogic interaction in learning and education, less attention has been directed to the ways in which materiality is entangled with interactional processes, conditions and achievements. At the same time, sociomaterial approaches to researching and understanding learning and instruction have been growing in significance theoretically and method-logically (e.g. Fenwick et al., 2015; Muller Mirza, et al., 2007; Mäkitalo, 2011).

Drawing on the sociocultural theories and studies on sociomateriality, in our work we are motivated to extend current understandings of the meaning and role of materiality in and for students’ dialogic interactions in a novel educational design and making environment. In our work, material objects are viewed as boundary objects and educational spaces as boundary spaces that mediate and constitute engagement in social activity (Star & Griesemer, 1989). By dialogic interactions, we refer to social interactions that afford students and teachers to talk and think together, and to explore different views and understanding (Kumpulainen, & Rajala, 2017; Mercer et al., 2010).

To this end, we ask: How do material objects mediate dialogic interactions between students and teachers in making and design activities? The empirical data stem from

a Finnish school that has recently introduced a new design and making environment, the FUSE Studio as part of its elective courses. The FUSE studio is an interest-driven STEAM (Science, Technology, Engineering, Arts & Mathematics) learning environment. Students can choose, based on their own interests, which design challenges they want to work on, when and with whom to work. The challenges include Spaghetti Structures, Jewellery Designer, Robot Obstacle Course, Keychain Customiser, Electric Apparel, Coaster Boss and Solar Roller. The challenges are accompanied by various tools, such as computers, 3D printers and other materials (e.g., a foam rubber, a marble, tape and scissors). The data comprise of 65 hours of video-records of 9-12 years old students' (N:94) making and design activities. The video data were transcribed and analyzed with interaction analysis methods taking into account verbal, visual and material conduct (Jordan & Henderson, 1995). We used purposeful sampling of events in the video data to address our research focus on the ways in which material artefacts mediated ongoing social interactions and dialogic engagement. The results illuminate social interactions about, around and with the material objects and the consequences of these interactions for dialogic interaction.

The study shows how the students' interactions were complex socio-materially entangled practices with opportunities and tensions for dialogic interaction. The vignettes demonstrate how material objects functioned as personal and social connection mediating both the content and relational spaces of interaction. At the same time our work points out how materiality is an important element of power and educational equity, making materiality a pivotal research focus for future studies on social interaction in learning and instruction.

A dialogical approach to students' meaning making in complex digital environments

Asa Makitalo (University of Gothenburg, Sweden)

The aim of this paper is to contribute with analytical entrance points into current media ecologies; more precisely how to analyse students encounters with controversial issues online. Interaction and learning are conceptualised as emergent properties of human activity, sensitive to the communicative ecology cultural members orient to, engage with and learn from. The analytical approach suggested, is thus sensitive to students' meaning making practices as they navigate the digital terrain of controversies in multi-functional, multi-layered and reflexively interconnected activities embedded in the dynamics of dialogue (Solli, Hillman & Mäkitalo 2017; Mäkitalo et al, forthcoming).

The research project reported is situated in current discussions about young citizen agency in a digitalized society. In the field of science education, so called socioscientific issues (SSI) have been introduced that invite students' engagement with scientific, societal, ethical and cultural perspectives (Zeidler & Nichols 2009). They concern complex issues that are increasingly intertwined in the everyday lives of people, such as climate change, genetically modified crops, vaccines and genetic testing to mention but a few examples. The conceptualization of SSI in the field of science education, however, has typically been grounded in knowledge-centred perspectives (Scott, Mortimer & Aguiar, 2006). It has mainly focused on individual decision making and aimed to develop citizens capable of applying scientific knowledge and critical habits of mind along with ethical awareness to SSI (Zeidler, 2014). There has been less focus on these issues as inherently social and technical

ones, i.e. how they are co-constitutive of the very arena where most public debates on socio-scientific issues take place – the Internet.

In the study, the activities of two student groups were documented using tripod mounted video cameras positioned to record all the students in each group with microphones placed on the tables (40 hours per group). In addition, recordings of students' laptop screens (one for each group) through screen-capture software were collected. This screen-capture software was controlled by one student in each group on their computer. Use of both video cameras and screen-capture software on students' laptops offered a detailed record of relatively complex group work arrangements that included the use of specific software, web resources and printed materials. The recordings were then synchronized enabling us to analyze interactional features.

Based on a couple of empirical examples, the argument in this paper is that socio-scientific controversies are complex, but not only in terms of their heteroglossia and multivocality. As they emerge through online debates they are also deeply ingrained in, and co-constituted by, the functionalities of current media ecologies. Supporting a functional scientific literacy around socioscientific issues accordingly need to take the intermedial complexity of the web into account, not only as an arena for debating and discussing, but as co-constitutive of the controversies themselves. When bringing the socio-technical make-up into the analysis of student meaning making, a dialogical analysis of how students navigate and account for the intermedial terrain is suggested.

Social interactions, learning and design: A sociocultural analysis of a local language programme

Nathalie Muller Mirza (Université de Lausanne, Switzerland)

In the field of a sociocultural approach to the psychology of learning, important contributions were made so as to understand learning processes as situated. If researchers generally agree that “(a) interaction with other people and artifacts plays an important role in learning and in the development of mind, and (b) what occurs in the microenvironment in which individual learning is observed is affected by larger contexts, both at community and global levels” (Hatano & Wertsch, 2001, p. 78), the nature of the relationship between learning and its “contexts” is an issue widely discussed (Ludvigsen, et al. 2011).

In the field of education and adult training, pedagogical context, or what authors call “milieus” or “environment”, are set up, which testify the designers' intention through a pedagogical design, including material, symbolic, and linguistic artefacts. It aims at focusing the attention of the learners on the operations of thought that are expected (Brossard, 2005).

In this contribution, adopting a sociocultural perspective, we choose to discuss the notion of *design* as an opportunity to better understand the complex relationship between the here and now micro-phenomena and the larger social and political scenery. A design cannot be simply seen as a set of objectives, defined by the “designers” (the teachers for instance), which are or are not reached by the “beneficiaries” (the learners). Rather we assume that a design is a “heterogeneous space of interactions” in which meet various and sometimes contradictory representations, signs, actions and meanings, from the different actors involved. Therefore, the discrepancies often observed between what was expected by the designers and what really occurred in terms of learning are not the result of misunderstandings or mistakes. On the contrary, they can be seen as indicators of the

communicative dimension of any intervention and as “windows” on the processes of change and on learning (Clot, 2001).

In this paper, drawing from an actor-oriented perspective (Long, 2004; Muller Mirza & Perret-Clermont, 2016), we would like to contribute to the discussion about social interactions, design and learning by presenting the results of a research let in the frame of a programme aiming at providing language lessons to refugees in the French-speaking part of Switzerland. By the means of various methods including analysis of documents, interviews, and “critical incidents” observed during the lessons, we examined the perspectives of 1) the designers of the programme, 2) the benevolent teachers, 3) the participants (refugees from different countries), and their zones of tensions. We will show that some of the main difficulties the learners and teachers faced during the classroom interactions (how to understand each other, how to make learners participate, how to manage each other’s social faces, etc.) may be related to contradictions observed at the level of the designers’ perspective and also at a more political level, where the question of providing tools of integration (such as language lessons) to refugees are issues widely discussed.

Greater than the sum of its parts: Collective processes in educational interaction

Mayra Mascareño (University of Groningen, Netherlands)

Marjolein Deunk (University of Groningen, Netherlands)

Friday, August 31st, 11 00 – 12 30
MNO 1.010 (MNO Building)

In our educational systems, the development of cognitive, academic and socioemotional competence is mostly conceived and assessed as an individual phenomenon. However, education and development are in essence social, and therefore individual development in such contexts cannot—and maybe *should not*—be isolated from collective processes. Moreover, from a sociocultural perspective of development, interactional processes at the *intermental* level are the basis for *intramental* development (Mercer & Littleton, 2007), making the educational system's accent on the individual plane all the more skewed.

In the present symposium we focus on the collective dimension of learning and development in educational settings. We do this in a wide range of subjects, competences and age groups, highlighting the ubiquitous nature of collective processes in education. Core ideas across contributions are that a) collective processes in education are important in their own right; b) these processes can only be realized and understood in human interaction; and c) that although interrelated to individual processes, collective processes are emergent and develop above and beyond the sum of individual contributions.

These ideas will be developed within very different topics, ranging from academic to socioemotional and higher order competences, and from diverse methodological approaches: Wilmes and Siry (Luxembourg) explore how individual and collective engagement with notebooks supports individual and collective science reasoning in multilingual students; Mascareño, Deunk and Langeloo (The Netherlands) study the collective nature of student engagement and its sequential links to teacher talk in kindergarten classrooms with diverse linguistic composition; Göthberg, Björck and Mäkitalo (Sweden) study the collective nature of creativity and text understanding in the context of an upper secondary school theatre production; and Rajala, Hilppö and Lipponen (Finland) draw on the notion of practical wisdom to explore nature of compassion in early childhood settings.

Marjolein Deunk (University of Groningen, Netherlands) - Discussant

A dialectic view of student science notebook use: the dance of the individual|collective

Sara Wilmes (University of Luxembourg, Luxembourg)
Christina Siry (University of Luxembourg, Luxembourg)

Science notebooks can support students in working in active, inquiry-based ways of learning. When students use notebooks to document science investigations in rich and meaningful ways, notebooks can support not only the development of students' content understandings, but also understandings about and engagement in science practices (Weibe et al., 2009). All too often though, student productions in science classrooms, such as entries in notebooks, are viewed as solely representative of individual understandings. This view serves to undercut the both individual *and* collective processes that constituted their construction, thus, inaccurately situating student representations as merely individual productions. In this presentation we show how an analysis of science notebook use in a primary classroom using the dialectic perspective of individual|collective (Mafra Goulart & Roth, 2006) revealed how aspects of students' interactions with each other and with their notebooks are intertwined and co-constitute one another. This work emphasizes how viewing notebook use as individual-collective can reveal the dance of these inseparable aspects of interaction.

Drawing from a larger corpus analysing inquiry-based science instruction in multilingual classrooms in Luxembourg (Author a), we zoom in on notebook use in a fourth-grade class in a city school with 14 ethnically-, socioeconomically-, and linguistically-diverse 10 to 11-year-old students. The science notebooks served as a place for students to document understandings, questions, and representations of findings throughout the inquiry process (Author b).

Grounded in sociocultural views of science education (Tobin, 2012), a process of multimodal interaction analysis (Rowe, 2012; Norris, 2004) of digital video-data (whole-class and small-group) was used to construct three cases of science notebook use. Cross-case analysis (Patton, 2015) employing dialectical views of individual|collective (Roth, Hwang, Goulart & Lee, 2005) was then used to examine the individual and collective aspects of interaction and notebook use as students 1) documented understandings at the end of a unit and 2) individually explained understandings to teachers using notebook entries. This presentation will elaborate the three cases, presenting a cross-case comparison.

Cross-case comparison of notebook use by three student-groups revealed that during small-group conversations about science understanding, how within each group both individual and collective construction of representations differed. However, across the cases it becomes evident that *in* and *through* the individual-collective relationship the production of notebook entries, as well as group interactions, shifted and changed with another. Through the individual work in the notebook, interactions at the collective level changed. In turn, through the interactions around the notebook in the group, the individual notebook entries changed. Thus, the teachers' structuring of notebook tasks, coupled with the inquiry-based unit afforded students the space to assume a multiplicity of orientations within their group-work. This research has implications as it reveals how analysis of the material and interactional aspects of science notebook use with a dialectic lens reveals aspects of individual-collective interaction.

Teacher talk and collective engagement in linguistically diverse kindergarten classrooms

Mayra Mascareño (University of Groningen, Netherlands)
 Marjolein Deunk (University of Groningen, Netherlands)
 Annegien Langeloo (University of Groningen, Netherlands)

Whole-class activities are common in kindergarten class-rooms, and are mainly directed by teacher talk. Although efficient, this classroom setup has been linked to unbalanced levels of engagement among children of diverse characteristics (Kelly, 2008). While individual engagement is subject of extensive study, a less studied aspect is its group counterpart, *collective engagement*. Collective engagement can be seen both as a precondition for individual engagement (Lawson & Lawson, 2013), and as an emergent social process in which individual engagement is regulated (Ryu & Lombardi, 2015). As classroom processes, collective engagement and teacher talk are expected to be reciprocally related.

In order to foster (collective) engagement, teachers need to balance cognitive challenge and emotional and motivational support offered to the class (Shernoff, Kelly, Tonks, et al., 2016). One aspect that can alter such balance is the class' linguistic diversity. Teachers tend to use less cognitively challenging talk and questions (Leung, 1993; McNeil, 2012), and more managerial remarks (Piker & Rex, 2008) with young children from different linguistic backgrounds.

Our aims are a) to explore patterns in the moment-to-moment relation between teacher talk and collective engagement in kindergarten whole-class activities; and b) to explore whether these patterns are similar in classrooms with diverse linguistic composition.

Sample. We use rich video and audio data from whole-class activities in 20 Dutch kindergarten classrooms. Classrooms vary in linguistic composition (13% to 86% of *multilingual* children) and size (13 to 28 children). The whole-class activities focused in this study are book-reading sessions. Verbal interaction is currently being segmented and transcribed, capturing both the teachers' and the class' verbal input.

Coding. Teacher talk is being coded at the utterance level for cognitive challenge, motivational support and for organizational content, based on existing coding schemes (e.g., Shernoff et al., 2016; Mascareno, Deunk, Snow & Bosker, 2017; Lutz, Guthrie & Davies, 2006). Collective engagement will be also coded from video data with a new coding scheme. Emphasis is placed on the degree to which engagement is distributed across the whole class.

Descriptive analysis will focus on whether levels of collective engagement and frequencies of teacher talk codes differ for classrooms depending on their classroom linguistic composition. T-pattern analysis (Magnusson, 2005) will be conducted to identify sequences of teacher talk and collective engagement changes that are repeated in the course of interaction, both within and across classrooms. Classroom linguistic composition will be an independent variable in pattern analysis, in order to explore whether the patterns are different for different classrooms.

Results will be available at the moment of the conference. The results based on naturalistic observations will provide rich information about the interplay between teacher talk and collective engagement on a moment-to-moment basis. This is a level of granularity of research findings that is needed in the literature in order to inform concrete teacher practices that are linked to higher group engagement in early childhood settings.

Collaborative development in transforming drama text to stage text

Martin Gothberg (University of Gothenburg, Sweden)

Cecilia Björck (University of Gothenburg, Sweden)

Asa Makitalo (University of Gothenburg, Sweden)

With an interest in the creative and collaborative work achieved in and through theatre education, the overarching aim of this paper is to illuminate how joint understandings are established through social interaction in- and out-of-role, in a student theatre production where the centrality of text is significant. In most theatre productions, stage actors and directors collaboratively transform a drama text into a stage text (or 'performance'). In rehearsals, actors strive to develop such understanding of situations that will be presented on stage.

As Sawyer (2015, 253) argues, '[e]xplaining theatre creativity requires a sociocultural approach, because the explanation has to be based in the interpersonal dynamics among the actors'. We conceptualize theatre production as a goal oriented and co-creative activity where the presentation of the stage text requires an elaborated joint text understanding. Mutual understanding of a social situation is always dynamic and underway among participants who engage in a range of communicative projects (Linell 1998) to move the activity forward. Meaning making in such activities is further seen as achieved through the material-semiotic means that become salient in pursuing joint activities in situ as part of cultural practices (Vygotsky 1978; 1999; 2004).

The empirical material originates from one year of ethnographic fieldwork conducted at an upper secondary school in Sweden where the participants worked with the staging of Molière's drama *The Affected Ladies* from 1658 (Göthberg, 2015). For this study, we have drawn on the video data that provides access to sessions from the first reading of Molière's text to the final performance. We selected instances of student initiated role-play situations for analysis and scrutinized how joint text understanding was interactively established as communicative projects among the participants by focusing on salient mediational means such as gestures, movements, facial expressions, tone-of-voice and speech.

The drama text served as a pivot, which provided given circumstances (Stanislavski 2017). However, what was 'given' had to be thoroughly negotiated in order to coordinate text understanding that would allow for convincing in-role interaction in the stage text (cf. Bergman Blix 2010). Coordinated ensemble work came about in tangible ways by holding hands, imitating voice, noticing postures, exploring manners, articulating interpretations (often bridging between Molière's text and contemporary culture), and by doing things with things. In-role and out-of-role interaction was intertwined, and joint understandings emerged in layers of communicative projects.

We conclude that the participants in this kind of educational activity put considerable joint effort into making ensemble text understanding more explicit. Another conclusion is that the students have to be very knowledgeable in navigating the extraordinary complexity of intertwined communicative projects. We suggest that drama-text based interaction in-role may provide educational potential in the field of developing text understanding.

Practical wisdom: A sociocultural approach for studying learning of compassion in ECEC

Antti Rajala (University of Helsinki, Finland)

Jaakko Hilppö (University of Helsinki, Finland)

Lasse Lipponen (University of Helsinki, Finland)

This paper explores a novel conceptual approach for investigating learning and education of compassion in the social interactions of institutional early childhood education and care (ECEC). In current psychological and educational research compassion is commonly conceptualized as an individual emotion, skill or trait (Goetz, Keltner, & Simon-Thomas, 2010; Eisenberg, 2013). This study broadens the theoretical scope of the existing research. Drawing on a sociocultural perspective we conceptualize compassion as a collective phenomenon and an integral aspect of the daily lives of both adults and children (authors, 2017).

In particular, we use the notion of practical wisdom as a lens for viewing acts of compassion in a way that is attentive to compassion as a socially distributed and culturally mediated processes that are integral to the ongoing lived practice. We define acts of compassion as sequences of actions and interactions that seek to alleviate another person's suffering and involve empathic concern for the other's well-being (Lilius et al., 2011)

The empirical data comprise video records participant observation. We recorded everyday activities of children (1-4 years old) and educators during three weeks, maximizing the variation of recorded events (varying persons, locations, and activity types). We first watched the videos repeatedly and identified episodes in which someone expressed or made reference to distress or pain (59 episodes). These episodes were analyzed with interaction analysis (Goodwin, 2017), focusing on the embodied interactional work and sense-making processes in play in these situations.

Our findings illuminate a variety of situations in and through which compassion was performed in the everyday life of the kindergarten. These situations provided the children with varying opportunities to learn practical wisdom when they participated in the situations as witnesses, givers or receivers of compassion. Our empirical examples demonstrate that the conceptual and methodological approach of this study provides a powerful avenue to highlight compassion and the practical wisdom nested within the complexity and situational richness of everyday life in kindergartens. For example, the findings illustrate the participants' practical wisdom in creating a space for joint conversation about a concerning issue, trying to make sense of the source of the concern and controlling who was allowed to know about the concerns and how much.

Reflecting on such moments offers a possible avenue for change in the interactional and cultural practices of ECEC. We advocate that in efforts to promote compassion in ECEC institutions primacy should not be placed primarily on training compassionate children but rather the cultivation of cultures of compassion.

PAPER SESSIONS

Paper Session 1: Inside the spectrum of science classrooms

Chair: Charles Max (University of Luxembourg, Luxembourg)

Thursday, August 30th, 11 00 – 12 30
MNO 1.020 (MNO Building)

Characterising a Spectrum of Classroom Inquiry in a High School Earth Science Classroom

Su Chi Fang (National Taiwan Normal University, Taiwan)

Classroom discourse and interactions play a pivotal role in creating a learning environment for scientific inquiry. To successfully engage students in inquiry-based learning, science teachers not only need to adopt inquiry-orientated curricula, but to engage students in inquiry-based conversations. Previous research has looked into the relationship between discourse practices and science learning. These studies developed frameworks to classify different types of talk in science classrooms, investigated their impacts on students' science learning, and suggested communicative approaches to extend conversations and enhance meaning making. To expand the research topic on classroom discourse and interactions, this study is concerned with how science teachers can use communicative approaches to shape a culture of inquiry, i.e., inquiry classroom norms, in a normal science classroom setting. From a longitudinal perspective, the study is intended to explore the ways a science teacher orchestrates discourse to encourage students' construction of knowledge and engages students in scientific inquiry over time. Specifically, the purpose of the study is to develop a framework to understand, analyze and characterize inquiry classroom norms in science lessons.

The study employed a qualitative case study methodology to explore a science teacher's classroom discourses throughout a semester. The participating teacher, Mr. Chen, majors in earth science and has a doctoral degree in science education. He is very experienced in developing and implementing inquiry-based curricula. Data collection included videotaping of a semester-long grade-10 earth science course taught by Mr. Chen (31 lessons) and an in-depth teacher interview. A two-dimension conceptual framework (guidance and cognitive dimensions) modified from the previous research formed the basis of discourse analysis.

The results showed that the semester-long science lessons presented a spectrum of classroom inquiry. The teacher integrated a variety of communicative approaches to engage students in inquiry-based conversations. Three typical class-room norms were identified. The first is "explicit inquiry norm". The establishment of the norm started with a question explicitly related to the process of inquiry, such as what evidence you used to support reasons and how you can measure vibrations. Students discussed these questions in groups. Then, the representative students expressed group ideas, and a whole-class discussion approach was adopted to guide and refine students' explanations. With the second norm, the teacher engaged the students in role-play and required them to "preform" their understandings using body languages. For example, the students were assigned to be the twelve zodiac constellations, the earth and the sun. Then, through whole-class discussions, the students were asked to "play" the movements of the celestial bodies and to make meaning of the concept of diurnal motion. The third class-room norm highlighted conceptual understandings. Usually, the teacher intertwined a short whole-class instruction with whole-class

discussions or Q&A using I-R-F-R-F-... pattern to guide, scaffold, and refine the students' understandings.

The framework developed in the study helped understand and characterise inquiry classroom norms. The findings form useful practical knowledge providing pre-service and in-service teachers tangible suggestions about how to integrate different communicative approaches to establish a culture of inquiry classroom over time in a normal science classroom setting.

Appeals to science: Recirculation of online claims in the classroom

Anne Solli (University of Gothenburg, Sweden)

When students encounter socio-scientific issues (SSI) discourses online they are faced with a wide range of disorganized online sources, different genres and modalities, relevant and irrelevant documents. In this situation providing students with opportunities to make sense of SSI discourses online becomes important. This study reports how upper secondary school students, having acquainted themselves with food biotechnology online, recirculated online 'scientific evidence' when engaging in school science discourse. The research was conducted within a project studying the introduction of digital mapping tools, developed for teaching and research in Science and Technology Studies, allowing students to collaboratively collect data on ongoing controversial socio-scientific issues online (Venturini, 2010) in order to explore and render complexities legible. Students were video-recorded as they participated in a number of school project activities throughout the cross-disciplinary project, relevant for this study was data from a deliberative peer discussion, a staged debate and a teacher-led seminar.

By drawing on dialogic theories of communication (Linell, 2009), I analyzed how students make use of discursive resources and how the recirculated science shifts in meanings as students draw on it for different purposes in various communicative situations. The students selectively incorporate widely circulating claims encountered online into locally relevant communicative repertoires to fit with their own, local communicative goals. The science referred to by the students and foregrounded compared to hundreds of recent papers on safety of genetically modified organisms (GMOs), is a study of how rats got cancer when fed GMOs, the memetic photos of these tumorous rats are found across linguistic and cultural borders on the internet (Sanchez & Parrot, 2017).

Students' authoritative accounts of relevant results of searches online: When students presented the controversy to older inquiring peers they were faced with the task of telling a convincing account of what they had encountered online and being attentive to the sorts of comeback, questions and criticisms the peers may have of the particular factual formulation. First students did not express their commitment to the recirculated science claim rather they report others' prototypical arguments. When the students were answering a quest for providing "strong arguments" used by opponents the students offered an evaluative perspective on the evidence quoted as "emotional extreme cases" that were used as a tool to threaten citizens. The students showed critical awareness of the rhetorical context of the web.

Students argumentative claims substantiating with evidence: In the two subsequent communicative situations that were both formally assessed, the science was recirculated and effectively provided students with evidence to substantiate claims when arguing as "opponents" in a staged debate, and in the seminar to qualify their own stance. The students engaged in what has been described as dimensions of

accountable talk (Resnick); to the learning community and to accepted standards of reasoning, but less with the dimension disciplinary knowledge. The authority of scientific evidence was never questioned in this school context oriented towards the grading criteria “distinguishing scientific vs nonscientific claims” and “substantiating claims with evidence”.

Teachers, trajectories and accountable talk

Astrid Camilla Wiig (University College of Southeast Norway, Norway)

Over the past decades, many critical voices have surrounded public education and its pedagogical practices (Hull & Schultz, 2002; Resnick, 1987; Scribner & Cole, 1973). One of the major criticisms posed is that public education rarely manages to harness those experiences and agency that learners bring to school from other contexts (Kumpulainen & Lipponen, 2010). This has encouraged school learning to stay disconnected from learners’ other worlds. Extensive international research address new technology as one of the key tools that might enable a pedagogy capable of bringing the everyday world into the classroom, and contribute to a relevant educational practice for students of the 21st century (Erstad & Sefton-Green, 2012; Ito et al., 2013; Ludvigsen, Lund, Rasmussen, & Säljö, 2011). This study explores how a teacher constitutes a Wiki-blog as a mediating resource for connecting a science project about electricity to how electricity works in everyday life.

The article explores potentials and challenges in creating intercontextuality while utilizing a Wiki-blog as a learning resource in educational dialogues. By drawing on socio-cultural and dialogic approaches to meaning-making and learning, the study examined how a teacher’s framing of opportunities to create intercontextuality while working with a Wiki-blog was managed and recognized in the moment and over time and what consequences these negotiations had for how students responded to and accommodated to the teachers instructions. The article draws on data from an empirical, longitudinal study in a lower secondary school in Norway to analyze teacher-student interactions. The study used video data of classroom interactions in a science project in a 9th grade class, collected 338 Wiki-blogs and placed a particular analytical focus on the teacher’s talk. The results reveal that the function of creating intercontextuality while constituting a Wiki-blog in educational dialogues, depends on how Wiki-blogs are framed as resources, what kinds of accountability the teacher addresses as relevant and how students responds to the teachers instructions. Reporting on the temporal dimension of the teaching points out critical shifts in the function of utilizing the Wiki-blog as a learning resource, which is argued to be pivotal when constructing intercontextuality.

Paper Session 2: Diversity and student agency with the aid of digital technology

Chair: Robert Reuter (University of Luxembourg, Luxembourg)

Thursday, August 30th, 11 00 – 12 30
MNO 1.030 (MNO Building)

Leadership in students' collaborative activity in a school-based making and design environment

Jasmiina Korhonen (University of Helsinki, Finland)
Kristiina Kumpulainen (University of Helsinki, Finland)
Anu Kajamaa (University of Helsinki, Finland)

The aim of this study is to investigate the social construction of leadership in students' collaborative group work in a novel school-based making and design environment. Previous studies have shown that the nature of leadership and how it is distributed among the participants pivotally affects collaborative group processes and outcomes. However, little is yet known how leadership emerges during collaborative group work in contemporary making and design learning environments that engender different demands and possibilities for social activity than more traditional collaborative settings (Korhonen 2018; Kumpulainen, Kajamaa, & Rajala 2018). To this end, this study asks: What kinds of leadership moves can be identified in students' social interaction during their making and design activity?, and How do leadership moves mediate students' collaboration processes?

In this study, leadership is defined as a reciprocal social process, where individuals coordinate or influence the activity of the group and its members. There can be several leaders and followers and these roles develop in the interaction between group members (Miller, Sun, Wu & Anderson 2013; Shin ym. 2004; Yamaguchi 2001). We investigate such socially emerging leadership by identifying *leadership moves* from group interactions. Leadership moves manifest themselves while group members make initiatives that are acknowledged and negotiated in the group. Hence, these interactional moves do not develop into leadership if others choose not to follow these moves (Li, et al. 2007; Miller, et al. 2013; Sun, et al. 2017). Following Barron's (2003) conceptualization, we also investigate how identified leadership moves mediate collaborative group processes from the perspective of *content space* and *relational space*.

The empirical data of this study draw on videodata of five student groups working in a school-based making and design environment, the FUSE studio. Four 4th-6th grade students worked in each group. This environment offers students with different STEAM (*Science, Technology, Engineering, Arts & Mathematics*) challenges. Students can choose, based on their own interests, which challenges they want to work on, when and with whom. We collected altogether 83 hours of video material, over a period of one semester.

The results indicate that most of the leadership moves identified in the students' social activity concerned planning and organizing the group's work, which in turn, depicted the regulation of the relational space of collaborative work. Successful regulation of relational space seemed to interact positively and advance the students' problem-solving (i.e. content space). We could also identify leadership moves that concerned the development of ideas, advancing the students' collaborative problem

solving. These moves seemed to be connected to reciprocity of interaction and symmetrical roles between participants in the group. These in turn were regulated by various leadership moves. In some groups, more than one leader emerged. Reciprocity of parallel leadership moves seemed to advance collaboration and problem solving.

In sum, the study demonstrates that leadership is a pivotal part of children's collaborative work in novel making and design environments that deserves further research attention to ensure productive collaboration, including teacher support and interventions.

Diversity as Normality, Dive iN

Elisabet Sandblom (Jönköping University, Sweden)

Ylva Lindberg (Jönköping University, Sweden)

Therése Haglind (Erik Dahlbergsgymnasiet Jönköping, Sweden)

The point of departure in the research project DiveiN is that diversity is not exceptional but the normal situation, and that a change of segregating practices requires shifts in communication and interactional patterns. The project aims a) to problematize diversity without falling into the narrow scope on particular groups (Bagga-Gupta 2017a; Brown et al. 2012; García & Wei 2014) and b) explore a new strand in diversity studies with a focus on communicative practices and how these make diversity (in)visible in teaching and learning across subjects in upper secondary school. The goal is to improve inclusive and adequate teaching and learning inside and outside school settings in a context of digital – analogue – virtual – real communication, as well as to contribute to the conceptual development of diversity.

In this substudy, we concentrate on the, according to syllabus (Skolverket 2018), desired alignment of digital-communicative practices in school with those in society. The main question is: Which are the gaps between the digital-communicative practices in school-related contexts and relevant practices in society at large?

DiveiN brings together several perspectives on learning and communication pertaining to the fields of Education, Communication Studies, Sociolinguistics, and Literacy studies. Ethnography is the overall epistemological and methodological approach, that allows both for an insider's and an observer's perspective in understanding the communication patterns and practices (Agar 1996; Wolcott 1999). The theoretical framing of communication is based on Vygotskian thinking, which underscores the importance of agency and active participation in social practices and activities (Säljö 2000, 2005; Wertsch 1985).

Different methods are used in different stages of the project, which allows for a progressive itinerary towards continuous refinement of data retrieval and analysis.

Two pilot studies have been carried out in the first stage of the project concentrating on the diversity of upper secondary school students' conceptions of communication in relation to school work with a focus on mediation through digital resources:

- a survey focused on questions about the school-related usage of digital tools and resources in all subjects, inside and outside of school
- a close in on rich points (Agar 2006a; 2006b) through focus group interviews with small groups of students concentrating on the students' conception of a) themselves as digital natives /immigrants, b) support in connection with the usage of digital resources in school work, c) multi-modal ways to work, d) game-based learning and e) communication with the help of digital resources between students and teachers and between students respectively.

The results problematize a) the focus in school on textual instruction and communication in contrast to a multi-modal communicative society, and b) the “new digital divide” pertaining not to access to ICT, but rather to digital competence and support. These results are connected to a preliminary theoretical model for communication, that needs further empirical studies to grasp how practices can be improved in order to make a) diversity visible and b) the teaching and learning in all subjects adapted to the existing diversity.

Connecting to the "here and now": social media and cultural learning in the context of migration

Jinyoung Choi (Multi-LEARN Institute, Luxembourg)
Philippe Blanca (Multi-LEARN Institute, Luxembourg)
Gudrun Ziegler (Multi-LEARN Institute, Luxembourg)

Learning to be in the new environment is a challenge for any and all of us. In the Luxembourgish context, where 47% of the country's population does not hold a Luxembourgish citizenship, the growing number of networking organizations and community-oriented groups showcases a need for connection. This is specifically the case for the 200 newly arrived migrants as asylum seekers in Luxembourg that the project LEILU brings together. LEILU – “Learning to be in the new environment. A holistic approach for youngsters in Luxembourg (2016-2018) – is an approach developed and implemented by multi-LEARN Institute a.s.b.l. with financial support from Œuvre Nationale de Secours Grande-Duchesse Charlotte through the *mateneen* initiative. LEILU is a social-educational project that allows connectivity through participating in six modules of activities: “religious tolerance”, “finding your talents”, “visual discovery of Luxembourg”, “self-discipline through taekwondo”, “team-building through adventures”, “anti-violence”.

Various online and offline tools were utilized for community building and activity organization and Facebook turned out to be one of the most attended. Facebook offers three elements useful for our project configuration (i) posts, announcements and event invitations on the Facebook wall, (ii) contact flexibility by the creation of subgroups (for LEILU, Farsi and Arabic speakers group) (iii) the use of chatboxes with their various tools of expression (collective or individual, graphically written, but conceptually oral, Koch & Oesterreicher 2001, Durus & Ziegler 2013). After a period of experimentation and observation, LEILU coordinators identified the Facebook collective chatbox, as one of the most efficient and successful means of communication for activity organization with the community members. The chatbox has the advantage of allowing all-actors participation (organizers, interpreters, multipliers...) in a multilingual and agile framework, with both language and symbolic participant behavior (smileys, images, pictures, links...).

Our interactional analysis, based on a collection of chatbox written communication samples, showcases the following challenges: staying on topic (the activity being organized), communicating a decision (participating or not in the activity) and agreeing on the organizational details (transport, logistics, etc.). These elements show the difficulty of connecting with a migrant population, identified as volatile and unpredictable. The current paper looks at interactional multilingual multimodal strategies (European Council 2001:15) developed in this specific online environment: a) to be/stay in touch with a highly versatile audience, b) to get confirmation of commitment, c) to be assured that the message is clearly understood and transferred to the concerned parties to predict a future behavior (attending activities).

The identified strategies showcase conclusions pertaining to power relations, avoidance and “face-keeping” (Goffman 1976) practices.

The Facebook chatbox environment, while being both written and conversational, both “online” and “offline”, both known and unknown language-wise, organized without being institutionalized, offers the space to make choices, explore options and finally identify and develop one’s own version of connectedness in the new environment.

Even if one could think that a written collective online environment holds the potential for connectedness, our analysis shows that, in this specific context, the Facebook environment can likewise support the volatile behavior of the participants.

TECchnology mediated PARTicipation - visual explorations for learning (about) the new environment

Jun Song (Multi-LEARN Institute, Luxembourg)

Natalia M. Durus (Multi-LEARN Institute, Luxembourg and INALCO, France)

Gudrun Ziegler (Multi-LEARN Institute, Luxembourg)

The paper draws its insights from the project “Luxembourg: your country - my country: constructing mutual images of Luxembourg through participatory technology” - *tecpart* [[takepart]] launched in 2016 and running until 2019. The “*tecpart* [takepart]”, as the title implies, creates the conditions for emerging practices, i.e. learning with peers and with technology in the environment of a “new” country. The 58 youngsters, aged 14-18 years, are EU and Non-EU nationals, and have been in Luxembourg for less than 24 months.

Within the *tecpart* project, the youngsters are invited to document and create shared visual representations of Luxembourg with iPad devices. 2000 pictures and 50 other multimodal digital productions (a mix of pictures, videos, audios, and texts) were created. The current paper identifies and analyses verbal, non-verbal and digital indicators of collaborative participation as they have been enacted by the youngsters (i) when taking the pictures, (ii) when co-creating the video presentation, (iii) when presenting the end result in front of the peers and (iv) during the reflexive interview.

For the analysis of the data, we employ a mix-method approach combining field-notes and observations, multi-modal content analysis and discourse analysis. The primary analysis indicates that these participant-driven and digital technology-enhanced activities 1) open up the unique possibility for the migrant-background youth not only to discover the new environment by “paying attention to the details around” but also to (re)discover their origins by eliciting similarities or differences with previous contexts, 2) reveal the order of importance of the new environments elements as seen through the participants’ eyes, 3) encourage the youngsters to look for new ways to produce diverse and dynamic digital creations, and 4) allows them to be in contact and develop interactions with peers, guides, etc.

The use of the digital technology delineates subtle yet comprehensive insights of youngsters’ participation beyond oral and written language expression creating novel forms of self-expression and social involvement (Lenhart et al., 2010; Buckingham, 2009).

*The project *tecpart* is developed with the financial support of the European Asylum, Migration and Integration Fund (AMIF) and the Luxembourg Office for Reception and Integration (OLAI).

Paper Session 3: Learning technologies in higher education

Chair: Nathalie Muller Mirza (Université de Lausanne, Switzerland)

Thursday, August 30th, 13 30 – 15 00
MNO 1.030 (MNO Building)

E-learning Supporting Higher Education - Hospital Transition

Diego Di Masi (University of Padova, Italy)
Alessio Surian (University of Padova, Italy)

The paper focuses on blended learning design that takes advantage of both on-line and face-to-face environments to improve the student–student and student–teacher interaction, with specific reference to the professional development of students in the context of Italian hospitals.

The paper addresses two related questions: (a) How does their professional representation change in the transition from university to hospital? and (b) Which competences emerge from the students' reports?

Two exploratory studies were implemented using the questionnaire and database activities of the e-learning Moodle platform: (a) a situational judgment test (SJT, as a questionnaire collecting behavioral data) and (b) reflective writing (RW, as database offering personal reflections). Third year medical students attending two Italian Universities were involved.

The SJT survey was designed to include 14 scenarios based on CanMEDS key competence area. For each scenario, students are presented with alternative courses of action.

The RW task asks students to write reflective reports in three different phases: at the beginning, during, and at the end of their first hospital internship. RW is a regular component of the third year course Introduction to Medicine and students are supported by a mentor through one-to-one interactions. For the purpose of the study, texts were anonymized by the mentor and so were any reference to dates, locations, and patients.

Two SJT outputs were elaborated. The first one is a radar graph presenting the mean score for each CanMEDS competence area. The final score was calculated by weighting the students' answers on a scale from 0 to 100 according to the priority ranking as previously defined by the expert group. A t-test to compare university and gender group means was conducted. The analysis shows that there is statistical evidence that gender means are significantly different in the communication competence area.

In addition, a graph is provided to each student indicating the individual score and the overall group score. By highlighting the competence areas that are taken into account, feedback is provided that supports the student's reflection concerning the individual sense-making process in relation to the various scenarios.

Two qualitative analyses were conducted on the students' reflective texts. A top-down analysis using the CanMEDS competence area shows that communication is the most frequently described competence area by students during their internship. The second analysis focused on the communication competence area alone.

The analysis of students' narratives provides relevant examples of different ways to approach patients and to collect and elaborate information in relation to clinical

reasoning. Narratives also help to identify critical aspects in conceptualizing disease and illness issues and the role of clinicians' emotions and the way they are taken into account in decision-making.

The way students address critical incidents, once organized within a blended environment can play a generative learning role. SJT and RW contribute to scaffolding the students' reflective practice in relation to physicians' core competences and for supporting faculties in designing higher education curricula.

SJT and RW allow medical education research to explore the ways students experience the transition between higher education and health practices. In turn, an understanding of this transition from a professional development perspective helps medicine to focus on ways to perceive and to approach the complexities of illness, i.e., the ways clinicians can better formulate their roles with respect to clinical reasoning.

Connecting through collaboration: Instructor's role in high fidelity simulator training

Astrid Camilla Wiig (University College of Southeast Norway, Norway),

Charlott Sellberg (University of Gothenburg, Sweden)

Salman Nazir (University College of Southeast Norway, Norway)

Modern day navigation is a collaborative and highly technical work activity, as bridge teams need to coordinate their actions and collaborate in order to handle the complexity of different traffic situations. In maritime education, simulator-based training provide a safe environment to prepare students for such professional team work practices (Hjelmervik, Nazir, & Myhrvold, 2018; Sellberg & Lundin, 2017). This study explores the use of high-fidelity simulator-based environments in maritime education, examining what resources instructors utilize when introducing exercises where the objective is to learn to collaborate as a bridge team. Research has documented that in controlled simulator environments, exercises can be designed to train and assess specific learning outcomes (Salas, Bowers, & Rhodenizer, 1998). Furthermore, exercises also offer possibilities to change scenarios to fit students understanding, adding or reducing task complexity or change scenarios to fit student performance (Hontvedt, 2015; Sellberg, 2018). However, less is known about the instructor's role in organizing exercises where students learn to collaborate as a bridge team in simulator-based environments. The study is designed as a workplace study, which is an approach dedicated to examining the complex relationships of social interaction and technology (Heath, Hindmarsh, & Luff, 2010). The analyses draw on video recordings of instructor–student interactions in a high-fidelity simulator environment in maritime education in Norway. The analysis is based on sociocultural and dialogic perspectives of teaching and learning with digital tools (Säljö, 2010; Vygotsky, 1962; Wertsch, 1991). The focus of analysis is on the introduction of technologies for collaboration made by the instructor prior to the exercise, and how students responds to and accommodate to the instructions given. Preliminary findings displays that an instructional design to organize collaborative tasks in simulator-based learning environments might be seen as having dual functions; the learning through collaborating activities and learning to collaborate.

Playful transgressions when digitalising project group work

Signe Juhl Møller (University of Helsinki, Finland)

This presentation addresses the digitalisation of project group work for students at a university college who are taking part in an interprofessional class (faculties include midwifery, nursing, social work, physiotherapy, nutrition and health). Here an educational setting is created to foster the exploration of practice-based topics through project-based group work. In the process of working on, and continually uploading, an online product, it is argued that such group work will facilitate a different approach (from the student's perspective) than traditional group work learning practices.

The aim was to explore the student's transgression of the boundaries of professions and domain of practice, challenging their former experience, with the researcher following three of the students' meetings, and online activities to document how digitalising group work would inspire exploration and encourage students to share and experience various ways of participating in practice forms.

Data and method: Collaborating with the teaching staff at the technical faculty of Copenhagen University an ethnographic study was carried out within two of fifteen groups. Methods applied included: Interaction-based observation, guided teachers' notes, interviews, focus group interviews, discourse analysis (local intranet forum), quantitative analysis (grades and the standardised mandatory evaluation), including written and transcribed recorded observation, grades and standardised evaluation retrieved for statistical analyses.

The students collaborate around producing content for a web page that allows anyone to revise, add, and delete content, run in the web browser (within a WIKI framework) – with students pointing out how it: “[...] allow[s] for the teacher to constantly surveille the [group-work] process.” Suggesting that the setting becomes less explorative and more guided by the supervisor. This unorthodox approach to the classical project-based learning process was deployed to increase students' open-ended activities and exploration within a practice-based learning setting.

Results show how statistically, in the mandatory course evaluation survey, students' reported performance increases: the students underscores the WIKI as a serious contribution to achieving a high learning outcome: 91% for the intervention groups compared to a mere 66% for the rest of the groups. However, making use of cultural-historical methodology, in the analysis of focus group interviews and observation of interactants, new concepts are generated as an integrated part of interpretation within the process. This brings insights into learning practices and engagement as students co-create the content of the web page, thereby identifying transgressions and negotiations. This illustrates that the WIKI as a platform might decrease own-directed activities in that the basis for the possible transformation of the activity lies in the transgression of boundaries through the interactants' own-directed activities, which is mutually encountered in the frame.

It is proposed that studying how to encourage students in taking a bold and exploratory approach, theories should arise from observed transformations, providing insights into novel learning, transgressive and creative acts. This is important in a broader perspective for co-construction to be integrated into institutional practices. Part of the presentation will seek to demonstrate how students' understanding of transgressions within collaborations leads to an initiated practice and the exploration of open-ended activities.

Negotiating epistemic spaces for dialogue across disciplines in higher education

Giulia Messina Dahlberg (University of Gothenburg, Sweden)

Jessica Lindblom (University of Skövde, Sweden)

Alberto Montebelli (University of Skövde, Sweden)

Erik Billing (University of Skövde, Sweden)

The support and design of activities which focus on the capability of students to participate in a range of different communities in legitimate ways is one of the constitutive part and aim of higher education to support democracy and equity in the 21st century. This entails that the creation of contexts that foster a dialogic and transdisciplinary mindset should be on the agenda when dealing with the planning and implementation of study programs that are theme-based rather than discipline-based. Furthermore, a focus on the planning and implementation of educational practices that acknowledge the gains of inquiry-based, transdisciplinary and cross-domain activities also emphasizes research-based education in which the practices of research and education interpenetrate each other, rather than constituting separate domains, at every level of the curriculum (Fung, 2017).

Taking both sociocultural and dialogical perspectives on languaging (Messina Dahlberg, 2015; Goodwin, 2018) including the use of technology, the study reported in this paper addresses the ways in which students negotiate and frame time and space dimensions in communicative practices during their engagement in setting up, preparation and running of an experiment on Human-Robot Interaction (HRI). The study explores the role that language, gestures and movements play in the creation of a shared epistemic space for dialogue (Montebelli et al., 2017) across disciplines through the analysis of interactional data created during students' discussions when dealing with the framing and running of the experiment. The investment in such an analytical focus, we argue, gives us a vantage point that will shed light on how complex communicative practices might result in fruitful educational activities and thus, contributing to the body of research that deals with the study of dialogic education. In our previous work (Montebelli et al., 2017) we have argued for the design of a dialogic pedagogy of HRI that, in our view, is fruitful to create an epistemic space that will support students to become legitimate participant in such a multidisciplinary and growing academic field which is still attempting at defining its own themes and boundaries (Dautenhahn, 2007).

By using a range of representational techniques to show the crossmodal and embodied nature of human communication (Lindblom, 2015), the study makes visible the patterned actions that students make and orient towards when dealing with a range of tasks in order to come to an agreement or reach intersubjectivity. The analysis shows the role played by bodily movements and gestures in the organisation of the interaction i.e. in the ways in which participants "move on" (both discursively and physically) to the next task or topic (in terms of epistemic spaces of dialogue) as well as in the role played by technological tools (both analogue and digital) in the creation of such spaces. In terms of implication for educational practices, the analysis of students' actions show how their engagement in the tasks related to the planning and running of the experiment also constitute relevant framings for the student to learn "how to do research" thus contributing towards the constitution of a research-based curriculum that attend to both students' engagement with the situated immediate outcomes the instrumentality and of specific pedagogical actions and the creation of meaningful activities that support and foster employability in the possible future.

Paper Session 4: Methodological choices and analytical approaches arising in the digital ecology

Chair: Robert Reuter (University of Luxembourg, Luxembourg)

Thursday, August 30th, 13 30 – 15 00
MNO 1.010 (MNO Building)

Chronotope as a sensitizing concept for analysing meaning making in and across learning ecologies

Hans Christian Arnseth (University of Oslo, Norway)

Kenneth Silseth (University of Oslo, Norway)

Thorkild Hanghøj (Aalborg University, Denmark)

The call urges us as researchers to reflect on our meaning making practices when we study learning and instruction as it emerges and transforms across a variety of learning ecologies (Barron, 2006). The fact that participants in social interaction continuously move between platforms, tools and activities makes the study of participation and learning a complex enterprise. Lemke (2000) argues that the issue of spatial proximity is becoming less relevant for understanding why and how participants engage in social interaction. Also, social interaction is increasingly mediated by digital tools, something that makes issues of time/space crucial for research into learning and instruction. In our research we are concerned with analyzing movements and flows between formal and informal educational settings. In line with a sociocultural approach we understand meaning and social order to be properties of interacting systems that operates on interconnected timescales (Beach, 1999).

In this paper, we particularly address issues of space and time and how issues of continuity and displacement on the one hand and issues of proximity and distance on the other are managed in social interaction. Studying continuities and discontinuities between formal and informal sites for learning is a growing concern in research on learning and social interaction (Bronkhorst & Akkerman, 2016; Silseth & Arnseth, 2011). The Bakhtinian notion of *chronotope* might be useful for making time and space into such a focal point for analysis (Bakhtin, 1981). Chronotopes represent patterns of movement between sites and actions in time where time thickens and becomes analyzable, and space becomes charged with meaning and responsive to unfolding movement.

To provide examples of the analytic opportunities offered by the notion of chronotope, we analyze video data capturing different types of classroom activities in lower secondary classrooms. Using a micro-ethnographic approach, we analyze in detail how time-space configurations are enacted in interaction where resources from different sites that students move between are oriented to and re-configured in order to establish transitions between these sites. We propose two analytic strategies for addressing time-space configurations while maintaining joint artefact mediated action as the main unit of analysis. The first is to be sensitive to the historicity of the time/space configurations of practices; particularly how tools carry traces of previous use, and the second is to examine time/space as an integral feature of emerging practices. Time/space becomes analytically visible in how participants refer to and orient to spatiotemporal issues and how past and future come together in joint meaning making.

Implications of selection criteria of large online corpus

Thomas Hillman (University of Gothenburg, Sweden)
Annika Lantz Andersson (University of Gothenburg, Sweden)
Mona Lundin (University of Gothenburg, Sweden)
Annika Bergviken-Rensfeldt (University of Gothenburg, Sweden)
Louise Peterson (University of Gothenburg, Sweden)

The availability of trace data from social interactions in online environments presents significant opportunities for interaction analysis, but also raises major methodological issues. A key concern is selection criteria when huge numbers of interactions are made available. The focus of this paper is to reflect and discuss the implications of different selection criteria in a research project on informal teacher professional development on social media.

During the last decade, an increasing number of teachers have engaged in pedagogical discussion in social media groups, but few studies have systematically analysed those interactions (Maciá & García, 2016). We have addressed this gap by examining the interactions in a large teacher Facebook group through a three phased analysis process: 1) *meta-data selection criteria*, 2) *content selection criteria* 3) *interaction analysis of selected threads*.

To examine the interaction in the group, we collected all activity for the first three years it was active by accessing the Facebook Graph database through the FacePy library (Gorset, 2014) for the Python programming language. The data includes more than 3,000 posts, over 15,000 comments and nearly 17,000 likes from nearly 13,000 group members. Once collected, the dataset was processed to create continuous transcripts of each thread and a large spreadsheet file with all meta and content data. As a basis for identifying discussion threads for interaction analysis, the five collaborating researchers in the project engaged ethnographically with the Facebook group by observing the interactions (Davies & Merchant, 2007). This informed exploratory data analysis (Morgenthaler, 2009) that examined data patterns useful for selecting relevant threads. The resulting selections of empirical material are to be seen as exceptional sets of interactions that each have specific methodological and ethical considerations (Bergviken Rensfeldt, et al., 2018).

In this paper, we will discuss the implications of different selection approaches in four studies. For study I (Lantz-Andersson et al., 2017), the focus was on examining the established repertoires and norms in the Facebook group. We chose to concentrate on patterns related to the intensity of discussions, operationalized as the number of comments and likes in a thread and the time between each of those actions. In Study II (Lundin et al., 2017) and III (Peterson et al., 2018), the emphasis was on exploring how professional identities were enacted and how support was performed. For this, we chose to look for discussions where something was 'at-stake' by selecting threads that deviated from the group norm of contributing relatively equal numbers of comments and likes. Finally, in Study IV (Hillman et al, 2018) the focus was to identify key periods of moderator activity in relation to shifts in participation in the group. Here we operationalized the relationship by selecting periods where the amount moderator activity was above the 95th percentile for the dataset and there were significant shifts in participation trends. In each study, the challenge has been to find ways to examine and display the large amounts of data available through selection approaches appropriate for the research questions, methodological needs and ethical considerations.

Using video to explore storytelling in the family milieu-some methodological and ethical reflections

Jelena Radišić (University of Oslo, Norway)

Nada Ševa (Institute for Educational Research, Serbia)

Over the years use of digital technologies in capturing social interaction has become a prominent feature of research. More specifically, video and accompanying software have made possible to come back repeatedly to complex research sites such as the classroom; while advancement in methodological and ethical rigor have contributed to the process scrutiny. In the context of family studies and early childhood education the use of video has also become an important tool to investigate development and learning, taking notions of anonymity, informed consent and validity of data even more at the fore.

This paper discusses methodological and ethical dilemmas encountered in the collection, transcription, and representation of video data gathered in a study focusing on storytelling in parent-child dyads. Data were collected following 12 families with children in age group of 3 to 5 year-olds in Belgrade (capital of Serbia). The sample was balanced for age and gender (i.e., 4 families were followed in each age group, 2 with boys and 2 with girls of appropriate age). Each family was followed for seven consecutive days with an instruction to capture all storytelling interactions with their child using a camcorder. The researchers were not present during these encounters. Prior to the beginning of filming, researchers were present in the home to provide a brief training on the camcorder use, to complete the consent procedures and to answer all possible questions parents and the child may have had. These sessions would last up to 60 minutes. As the seven day period would come to an end, one of the researchers would collect the video equipment, while the parent involved in the storytelling dyads would fill out a questionnaire focusing on parental literacy practices and accompanied beliefs, as well as information on the home learning environment. The second visit was also a site for the parents to provide feedback on the experience and how they have framed the entire data collection process. These visits would similarly last up to an hour.

From an ethical stance, idea of informed consent was an imperative in communication with the families, not only from the perspective of current and future data use for the adult participants, but also in making comprehensible to a child involved what will take place. In addition, as researchers we were accosted with additional scrutiny in connection to what can be viewed as a valid research data and used in forthcoming analyses as an opposite to child/parent 'performing' in front of the camera. This decision making process was much supported observing the field notes from the two family visits, particular data on the home learning environment and the paralinguistic cues from the video of both the parent and the child. Although the latter have often been excluded from studies on the grounds that they are problematic for data collection and analysis, characterized by personal and cultural variations, they have contributed in building a codebook for our data corpus in deciding whether particular collected data would be part of the analyses or not.

Interaction in peer tutoring: a condensed coding scheme for peer interaction

Valentina Reitenbach (German Institute for International Educational Research, Germany)

My PhD-project aims at a better understanding of peer interaction (PI) as a mediator for learning. I chose a mixed methods approach (exploratory sequential design; Cresswell & Plano Clark, 2011) to analyse primary school students' PIs. During the "WIP-session" I would like to discuss my initial categories in view of the tension between the necessity of data condensation and information loss.

Operationalisation of interaction has to meet the following criteria in particular: 1) To address internal validity, it takes into account the specific setting of the study (intervention, participants). 2) It can distinguish between different manifestations of learning potential. 3) It is suitable for qualitative and quantitative analyses (metric scale). 4) Categorisation of big corpora is possible in an efficient way and without the necessity for huge resources (personnel, time).

The context is a peer tutoring intervention with 82 dyads. Third and fourth graders participated in a structured training (12 sessions, 45 min each) for either reading or arithmetic strategies. During the first six sessions, a trained assistant instructed the strategies to the students. During the second part, the students practiced these strategies independently with the help of structuring materials whilst being supervised by the assistant. We audio recorded PIs in three sessions from the second part.

Opportunities and challenges for analyses lie in the extraction and condensation of information from audio material to quantifiable data. For each tandem, about 20 min from session 9 were transcribed. Following the mixed methods design, I am using the qualitative content analysis with a deductive approach (Mayring, 2009): Initial main and sub-categories as well as different manifestations are deduced from theory and empirical studies (task-relatedness; type of utterance; processing depth) and will be revised during formative reliability checks. The final categories will be interpreted and used for quantitative analyses at a later stage.

Paper Session 5: Critical reasoning across the subject domains

Chair: *Sylvi Vigmo (University of Gothenburg, Sweden)*

Friday, August 31st, 11 00 – 12 30
MNO 1.040 (MNO Building)

Video Narratives: A Tool for Studying Students' Mathematical Reasoning and Language Representations

Carolyn Maher (Rutgers University, United States)

Louise C. Wilkinson (Syracuse University, School of Education, United States)

This paper introduces a unique collection of video-taped recordings, from longitudinal and cross-sectional studies of diverse U.S. students' learning mathematics (K-12 grades and beyond), with associated tools for searching and constructing video-narratives of mathematical and language learning in various settings. An example displays interactions among a group of 4th-graders, who participated since 1st-grade, in a longitudinal study of the development of mathematical ideas and reasoning.

Learning mathematics is a complex process, requiring many theoretical lenses. Researchers from many disciplines (e.g. mathematics educators, applied linguists, educational psychologists, and learning scientists) investigated central disciplinary questions using video-tapes of students' learning, rendering data both accessible and permanent. For mathematics learning, careful examination of video recordings permits a close examination how students' build mathematical ideas. Videos serve as powerful tools for tracing students' development of mathematical ideas and ways of reasoning over time. Digital tools allow researchers to explore individually or collaboratively, both within and across disciplines, students' and teachers' interactional processes in new ways; including tracing interactions on video records, excavating massive amounts of data, and capturing classroom learning processes. Digitally-enhanced tools for data collection and analyses generate large amounts of data in various modalities, offering opportunities to explore, combine, and examine data. Close examination offers opportunities to discover subtleties of students' thought processes, such as tracing students' cognitive growth, thus providing insights into how social and language processes influence students' cognitive development.

One major database of students' learning mathematics was developed over three decades by Rutgers University with support from the *National Science Foundation: the Video Mosaic Collaborative (VMC)* (<https://videomosaic.org>). This digital repository, housed at Rutgers University, stores over 400 hours of video-data and metadata, available worldwide (open source); 4000 additional hours are available for insertion. The *VMC* also stores selected analyses of elements of the database. With the *RUAnalyticTool*, users create video-narratives describing and analyzing students' learning processes. These stored video-narratives have been used for research, instruction, and as an assessment tool; and are linked to scholarly publications.

We present an analysis of students' mathematical reasoning and illustrate how mathematical language and literacy knowledge are both interconnected and integrated in a small-group interactive learning activity. We focus on one elementary student's (Stephanie's) exploration and construction of a justification for a general solution to a counting problem. The critical event was extracted from a longitudinal study following the students' reasoning from elementary through secondary school. The students investigated a counting task (*Building Towers Problem*), that involved

building towers of varying heights selecting from unifix cubes that were available in two colors, which is a component of the combinatorics mathematics problem strand. With her small-group classmates, Stephanie used her own invented notation and revealed informal “proof-like” reasoning. The analysis identifies elements of everyday and academic language, including a detailed description of her use of elements of the mathematics register (discipline-specific mathematical language). Stephanie incorporated subordinating language devices, revealing complex language. Combined with her contextualizing of details, Stephanie mixed and meshed elements of everyday conversational language and the mathematics register for her expression of mathematical ideas.

Dialogic interactions and comprehension of multimodal texts by primary school children

Sylvia Rojas-Drummond (National Autonomous University of Mexico, Mexico)

María Jose Barrera (National Autonomous University of Mexico, Mexico)

Fiona Maine (University of Cambridge, UK)

Riikka Hofmann (University of Cambridge, UK)

The present qualitative study analyses the dynamic relations between dialogic interactions among peers and their comprehension of narrative and expository multimodal texts. It further explores the different ‘stances’ that peers adopt while discussing each type of text (Expressive, Efferent and Critical-Analytic stances; Soter, 2008). Reading in the 21st Century requires accessing written, visual and digital modes of text and using a range of semiotic resources to comprehend them. However, present research has not sufficiently embraced a multimodal approach to literacy to highlight how readers create meaning by combining these diverse semiotic modes of communication (Jewitt, 2005; Serafini, 2012). Another current strand of inquiry has focused on the role of dialogic interactions among peers in the promotion of children’s reasoning and learning, particularly in the domains of mathematics and science (Alexander, 2008; Howe, 2010; Mercer & Littleton, 2007). Our line of research has extended this dialogic approach to the domain of literacy by investigating how dialogic interactions among peers may enhance high-level comprehension (Rojas-Drummond, et al, 2014; Rojas-Drummond, et al, 2017). In the present paper we create links between dialogic and multimodal approaches to understanding literacy. Selected data will be presented from a broader bi-cultural study with 8 Mexican and 8 British primary school children between 10 and 11 years old. In each country, children were organized into two mixed-gender quartets. Each quartet read and discussed four multimodal resources (a short animated film, a narrative picture-book, an expository illustrated book, and an interactive webpage), each in a separate session. Spanish and English versions of the same resources were used. The activities were guided by prompt cards presented by an experimenter. Children’s interactions were video-recorded and videos were later transcribed verbatim, together with a description of the context. Micro-analyses were carried out using a combination of tools from the Ethnography of Communication and the CAM-UNAM Scheme for Educational Dialogue analysis (Hennessy et al., 2016). Analyses to be reported center on comparisons between the dialogic interactions of the two Mexican quartets while reading and discussing the narrative and expository texts. Preliminary results suggest that the dialogic interactions among peers were adapted to the resource in question. In addition, for both resources, children tended to fuse the textual and visual semiotic modes, and this fusion seemed to support high-level comprehension. Lastly, for the narrative text,

children mainly adopted an 'expressive stance', while for the expository text, an 'effluent stance' was more salient; however, in both cases, the other two stances were also evident throughout the process of reading and discussion. Theoretical, methodological and practical implications of the study will be discussed.

Critical Literacy Skills: Exploring the Effect of Different Teaching Styles

Ingeborg Krange (Kristiania University College, Norway)

Ingvill Rasmussen (University of Oslo, Norway)

Leila Ferguson Krange (Kristiania University College, Norway)

The recent introduction of new concepts in the media, such as 'fake news' and 'alternative facts', may hamper citizens' decisions about both what and whom to trust. In addition, artificial intelligence may amplify our preferences and narrow our focus by excluding the unknown and unwanted. As social media gains a greater market share of the news, it influences what information we access, which challenges the basic democratic principles of different opinions being shared and contrasted. Therefore, the need for critical literacy skills in our educational system is now more evident than ever. At the same time, it is important to mention that although the idea of critical literacy skills is somehow new in the public debate, or at least has created renewed interest, these skills have been highlighted as crucial in academic practice and the research literature for decades (Abrami et al, 2015).

The aim of this article is to scrutinize teachers' instructional approaches to fostering critical literacy skills in history classes. By setting up a mixed methods design, we concluded that teachers' organization of classroom activities did not in itself seem to influence students' learning outcomes, based on the recorded topic knowledge scores. Rather, differences in students' achievements were related to how they managed to mobilize their previous experiences and knowledge to identify and understand various sources, their ability to have productive discussions with their peers and their capacity to follow up on their teachers' initiatives. This suggests that individual differences in how students respond to teachers' initiatives is also of great importance. This finding contributes to and nuances the significant finding of the importance of talk-intensive pedagogies to promote critical-analytical thinking and literacy skills (e.g. Murphy et al., 2016). The students in the first pattern, which encompassed the majority across the two classrooms, took advantage of discussions with the teacher and their peers. However, some students barely participated in the discussions. For these students, the individual assignment then became quite challenging, and they developed a pattern of struggling to make use of the teacher's advice, which are likely detrimental to learning. This group of students needed extra help with the sources. The complexity of locating, comprehending and integrating multiple sources is high and initiatives that aim to foster critical literacy skills in students need therefore to be addressed at both the individual and the group level, where teachers are in direct dialogue with students, as well as initiatives that contribute to the proper selection and interpretation of concrete sources. We argue that more research is needed, including intervention-oriented studies, on how to mobilize also the students who struggle and provide developmentally-adequate support to improve their critical literacy skills.

Paper Session 6: Collaboration across different sites: teachers, students and digital devices

Chair: Robert Reuter (University of Luxembourg, Luxembourg)

Friday, August 31st, 11 00 – 12 30
MNO 1.030 (MNO Building)

Teachers' Acceptance and Rejection: Effects on Students' Psychological Adaptation and Learning

Gülçin Gülmez (Middle East Technical University, Turkey)

Asli Bugay (Middle East Technical University, Turkey)

Ali Yildirim (Middle East Technical University, Turkey)

The quality of the bond between students and their teachers holds a pivotal role in children's lives. Offering the highest quality of subject-matter knowledge is definitely not enough to establish a healthy student-teacher relationship. The social facet of this reciprocal connection always comes along with top priority in learning processes. In this highly socially constructed environment, students' feelings related to their teachers and their school indeed make up for a large proportion defining the quality of learning. Feelings of rejection or acceptance are two core concepts that predict students' school adaptation processes, academic achievement, and misbehaviors (McNeely & Baber, 2010; Rohner, 2010). Perceived rejection and acceptance are known to shape students' psychosocial concepts as self-respect and acceptance by their peers. Regardless of their characteristics, every child is in need primarily of their parents' but also significantly of their teachers' acceptance. Since it is harder to make a significant impact through primary caregivers especially in socially and economically disadvantaged areas, to respond to children's needs of acceptance is enhanced when done correctly by teachers as individuals who hold a degree in education and hold appropriate pedagogical knowledge background and experience.

The purpose of this study is to investigate teacher behaviors that lead to students' feelings of acceptance and rejection and how they affect students' psychosocial adaptation and learning processes.

Embracing a grounded theory approach, this empirical qualitative research study utilized face-to-face interviews with 19 students in two public schools in two disadvantaged regions in the capital city of an East-European country. The data were exposed to content analysis where emerging themes and codes were organized to make sense of students' perceptions related to their experiences with acceptance and rejection in school by their teachers.

The results have shown that teachers had immense effect on students' feelings of acceptance and rejection and they impacted both their psychosocial adaptation processes and academic achievement. Those students who have been exposed to rejection behaviors by teachers were identified to act unwilling to attend school, and when they do, they showed limited interest in learning and lack of concentration. Therefore, their academic achievement was lower and they tended to misbehave at significantly higher rates than their frequently accepted peers. Some students even reported having nightmares over school and their teachers which affected their sleep routines. Yet, the parents and the peers of the students were also observed to reject or accept them based on their teachers' behaviors and attitudes. Moreover, since the

teachers happen to be among the rare psychosocial support units in especially disadvantaged regions with deficient socio-demographical context, children's only chance to cling to academic and social life is immensely enhanced or detrimentally damaged by their behaviors.

In these terms, the results and implications of this study are promising to shed light to specific teacher behaviors as acceptance and rejection that shape students' perception of themselves, their success and psychosocial adaptation.

Expanding educational chronotopes with personal digital devices

Øystein Gilje (University of Oslo, Norway)

There is growing interest in theoretical conceptualizations of time-space that use the Bakhtinian term 'chronotope' when analysing dialogues in educational contexts (Matusov, 2015; Ritella, Ligorio, & Hakkarainen, 2017). Chronotopic analysis of schooling enables scholars to investigate how time and space work together to shape participation in a specific educational context (Brown & Renshaw, 2006; Lemke, 2000; Matusov, 2015; Renshaw, 2017). A specific branch of these studies is interested in how space and time are organized by agents in social interaction and their use of digital cultural tools and mediational means (Kumpulainen, Mikkola, & Jaatinen, 2013; McLay, Renshaw, & Phillips, 2016; Ritella et al., 2017).

This paper aims to elaborate on this thread of research by looking specifically at how students use the viewfinder on personal digital devices as a boundary object in two projects in Math and Norwegian language. Understanding the digital devices in these two cases as boundary objects is strongly related to the importance of the viewfinder on the phone and the SLR camera. Framing the shot and reviewing the footage, actions facilitated by the digital technology, was crucial in the collaborative work on the assignment. In both cases discussed herein, the assignment given and the restructuring of time enabled the students to create educational chronotopes in which their own technology created space for completing and reflecting on the task assigned.

The findings described in this article can help to understand how students can work with personal digital devices in new and innovative ways, and by that expanding the educational chronotope in and outside of school. Such findings are in line with meta-reviews that argue for alternative discourse involving learning-in-place, learning trajectories and learning geographies and mobilities (Leander et al., 2010). It is argued that the new and novel educational chronotopes can coexist with the way in which schools traditionally organize teaching.

Young people's transformative agency in a school-based making and design environment

Anu Kajamaa (University of Helsinki, Finland)

Kristiina Kumpulainen (University of Helsinki, Finland)

Technology-enhanced making and design environments have aroused recent educational interest. They are suggested to offer a powerful context to foster students' science, technology, engineering and mathematics (STEM) learning and 21st century skills important for workforce development and overall functioning in contemporary knowledge society (see e.g. Benton, Mullins, Shelley & Dempsey, 2013; Bevan et al., 2016; Honey & Kanter, 2013; Rajala et al., 2013; Kumpulainen, 2017). Yet, limited

research attention has been paid to young people's *transformative agency* in their participation and use of digital technologies within educational makerspaces.

By transformative agency, we refer to young people's interest-driven and tool-mediated activity that breaks away from the given or expected frame of action. Cognitive instruments (e.g. concepts) and material artifacts are viewed an essential part of joint collective human activity and as a way to understand the activity, to give it meaning and to develop it (Cole & Engeström, 1993; also Vygotsky, 1978). Transformative agency holds potential for expansive learning, including the generation of new concepts, motives, and practices (e.g. Engeström, 2006; Haapasaari & Kerosuo, 2015; Sannino, 2015). Our research is guided by the following questions: How does transformative agency manifest itself in a school-based makerspace? What are the conditions and mechanisms of transformative agency in a school-based makerspace?

We investigate young people's transformative agency in "The FUSE Studio", a technology-enhanced learning environment of STEAM challenges which students can carry out based on their own interests (Stevens et al., 2016). Our data comprise of 65 hours of video-records of 9-12 years old students' (N:94) making and design activities collected during one semester. We transcribed the interaction data and inductively analyzed the students' discursive initiatives and expressions of commitment. We then investigated the ways in which the participants utilized the material resources of the FUSE Studio. Thereafter, we analyzed the tensions emerging in the interactions between the student and the teachers.

Our results reveal transformative agency as consisting of multiple intertwined conditions and mechanisms, namely: 1) *individual-emotional*, referring to the students deviating from the given instructions and usage of their prior knowledge and past learning experiences in making sense and resolving of the tasks at hand, 2) *situational-technology-mediated*, meaning the students' creative acts of carrying out and resolving challenges by unexpectedly taking into use tools and spaces, leading to extending of the given instructions, 3) *collaborative-expansive*, which stands for the social interactions where the students jointly compose ideas and plans, powerfully extending their expected roles as students, for example by starting to instruct their facilitating teachers.

Our study joins with an emerging line of research on student agency in connection to STEM learning and development of 21st century skills. Our analysis links and anchors students' agency to a novel sociomaterial context and digital mediation. Transformative agency provides a meaningful way to conceptualize interest-driven and student-centered change efforts in relation to traditional school practices. Makerspaces within schools can create promising conditions for transformative agency, yet, this is a complex and tension-laden socially and materially mediated process.

Paper Session 7: Technology mediated interaction and instruction

Chair: Charles Max (University of Luxembourg, Luxembourg)

Friday, August 31st, 13 30 – 15 00
MNO 1.020 (MNO Building)

Interaction in twitter as tool to capture productive collaborative learning in teacher education

Manoli Pifarré Turmo (University of Lleida, Spain)

Andreea Cujba (University of Lleida, Spain)

Laura Martí (University of Lleida, Spain)

Anna Salla (University of Lleida, Spain)

This paper investigates the potential of Twitter to enhance and capture productive interaction in collaborative learning. Educational researchers have already highlighted that productive collaborative learning requires a balance of engaging in high-level cognitive processes while sustaining socio-emotional processes that are favourable to this (Isohätälä et al., 2017). There are some studies that have used the affordances of Twitter to promote positive emotions for learning in community (Tang & Foon; 2017), to increase students and teacher interactions (Grosbeck & Holotescu, 2010) and to generate and discuss about new ideas (Barreto & Jiménez, 2010). However, there is a lack of studies about the use of Twitter to promote high-level cognitive processes.

This paper pretends to fill this research gap by analysing how Twitter is brought into use in an Educational Psychology course to promote pre-service teachers' Higher Order Thinking Skills (HOTS, Blomm 1956) development.

A case study was designed with a participation of twenty-five first-year students enrolled in the teacher education programme. The course lasted for a period of 40 hours. The classroom pedagogy followed the pedagogical principles of Thinking Together approach (Dawes & Sam, 2004). Students worked and discussed in groups the main activities and contents of the course and designed a learning project for primary education learners. All the students' tweets were downloaded, analysed qualitatively and assigned one of the four HOTS: remember, analysis, evaluate or creation. Three researchers participated in the process of defining the four categories of the coding scheme and categorising. Reliability procedures have been taken into account.

Students used Twitter to share their ideas, opinions, experiences and resources about Psychology with their mates. Besides, students showed the different stages of the collaborative design of the learning project. In this case, students not only showed their ideas but also showed their feelings and emotions about working in group. To do so, students uploaded a photo of the group work.

The detailed analysis of students' tweets showed that most of the students' tweets displayed remember (22%) and analysis (55%) skills. Although the higher order thinking skills of evaluation (13%) and present creatively new information (10%) were displayed less frequently these skills were developed most as the course progressed and students learned experience in using Twitter to interact and learn together with their classmates. 20% of the tweets used multimodal representation of the information (visual, photo & video), be. These tweets were also those who promoted more interaction among students, in the form of likes, comments and re-tweets.

Our findings suggest that Twitter can offer a lively collective space for learning and it can support a multimodal dialogue capable to cultivate the emergence of students' higher order thinking skills and emotional and social skills.

Analytical explorations on the what, where and when of language learning

Giulia Messina Dahlberg (University of Gothenburg, Sweden)

Sangeeta Bagga-Gupta (Jönköping University, Sweden)

This paper aims to illuminate the intersection of contexts where participants currently engage in communicating across different language-varieties in the process of learning a "second/foreign /additional language" online. Recently, a growing body of literature has recognized the inappropriateness of conceptualising and representing communicative practices in terms of codes where different named language-varieties mutually exclude one another. This could also be expanded to the study of embodiment where gestures and other semiotic resources are also seen as playing a central role (Linell, 2009; Finnegan, 2015). However, the purpose of going beyond fixed boundaries of named language-varieties and modalities implies a range of methodological/analytical dilemmas as well as theoretical impasses. Making visible complex practices can result in methodologies and representational techniques, which, in fact, deploy and may even reinforce such boundaries.

Drawing on sociocultural framings and decolonial understandings of languaging (Mignolo, 1994; Bagga-Gupta, 2017), this study aims to raise some taken-for-granted issues regarding the what and when of language learning. Given the omnipresence of virtual (learning) sites in contemporary digitally infused existence, it becomes pertinent to ask:

- when are human beings(not) engaged in language learning;
- what does language learning imply in contemporary times; and,
- which sites are relevant in terms of language learning.

A second (parallel) aim of this study is to illuminate key nomenclature associated with language learning in global-North contexts where multiple language-varieties are involved. Established constructs like bi/multilingualism, second/foreign/additional language and newer nomenclature like pluri/translingual are explored in the endeavor to recognize "transnational, diverse, plural identities" (Byrd Clark, 2012: 149) when researching language learning online and across contexts.

Both aims are unpackaged by looking at data from two projects at the CCD research environment: project CINLE and project EL. CINLE consists of screen recordings of synchronous online meetings of an "Italian for Beginners" course offered by a Swedish university during 2010-11 (see Messina Dahlberg 2015, Messina Dahlberg & Bagga-Gupta 2013, 2014, 2015) and national policy documents related to "distance education" (2000-present). EL is a repository of data from everyday life contexts across physical and digital sites from primarily the nation-states of India and Sweden (see Bagga-Gupta 2014, 2017).

Going beyond essentialist theories of language learning and identity-positions, the study uses the metaphor of a permeable membrane that enables information, tools, practices to cross physical-virtual spaces. The analysis illustrates how this seepage affects the communication in situ in relation to processes of language learning and categorization. Given its flexibility, space can be bent and reach a multiplicity of other sites, opening up for the unexpected in situated actions. The membrane extends the multidimensionality of languaging in ways that may or may not align with the (analytical and commonsensical) conventions of what, where and when language is (Finnegan,

2015). This fluidity of positions and languaging we argue, offers alternative ways of doing language learning, including how people categorize the world in terms of identity, language and culture (Bagga-Gupta, Hasnain & Mohan, 2013) as they endeavor to belong to (and analyze) a group, a community, a tradition.

Smartphone use and student and teacher participation in whole-class interaction

Fritjof Sahlström (Åbo Akademi University, Finland)

Marie Tanner (Karlstad University, Sweden)

Verner Valasmo (Åbo Akademi University, Finland)

With the introduction of smartphones, participation in web-mediated social interaction has become an integral part in the communicative ecology of classrooms. In this presentation, we show how the increase in student smartphone use affects how participation is organized and carried out in teaching and learning situations, in particular during plenary teaching in whole-class interaction. Previous research has established how classroom interaction is organized around a set of basic interactional features, most pervasive is the format of IRE (initiation-response-evaluation) (Mehan, 1979). Plenary teaching has been shown to extensively constrain student participation in classroom discourse because of how turns at talk are distributed. The frequent use of mobile phones brings new possibilities for participation in classrooms, which raise questions about to what extent well-established and well known patterns of classroom participation are still valid. In this presentation we draw on the concept *participation economy* (Sahlström 1999) and focus on how smartphone use affects the turn-allocation organization of the classroom (Sacks, Schegloff & Jefferson, 1974).

The empirical data consists of video recordings from multiple sources during 160 hours from lessons in Swedish and Finnish upper secondary classrooms. A total of 15 focus students have been followed, using wi-fi technique to mirror the screens of their phones. A collection of ten examples of students' use of smartphones during plenary teaching have been selected for further analysis of the interplay between connected and face-to-face interaction relying mainly on the concept of *participation frameworks* (Goodwin, 2000).

The result shows how smartphone use enables phone-mediated social interaction in ways not possible prior to the introduction of the technology. Our findings highlight visibility in the connected sociality of students in classrooms, where gaze patterns are found to be a salient resource that enables students to maintain and shift attention between parallel frameworks. We analyze how the connected participation is being made in relation to particular participation formats of plenary interaction, and in relation to instructional content. We also show how parallel participation frameworks can be linked and how the smartphone orientation in student side-talk is managed between peers. The main conclusion is that student smartphone use significantly alters participation patterns in whole-class interaction. Student phone use releases the major interactional constraint of whole-class interaction, and gives them a larger interactional space and alternatives concerning availability in relation to other's initiatives. Hence, smartphones offer increased possibilities for participation without in any other way threatening the basic and fundamental classroom participation economy. This means, that smart phone use in classrooms does not immediately seem to challenge dominating IRE-patterns, but rather preserves frontal teaching and is seldom attended to as disturbing in these situations.

Write to connect: technology mediated interaction for language learning

Natalia M. Durus (Multi-LEARN Institute, Luxembourg and INALCO, France)

Philippe Blanca (Multi-LEARN Institute, Luxembourg)

Gudrun Ziegler (Multi-LEARN Institute, Luxembourg)

Technological advancements favor nowadays oral online interactions in both customer service and business/social communication. Language learning has followed this trend and has evolved from a textual written approach (language learning around a text) to a contextual oral approach (oral, face-to-face or computer-mediated interactions) and from an institutional setting (language classroom) to a less institutional environment (e.g. peer learning). The current paper is focusing precisely on the affordances of Skype, as a language learning tool in a non-institutional peer interaction.

The data in focus was collected in 2013 and illustrates language learning exchanges in French between two plurilingual adult speaker whose first languages are Korean and French. The interactions take place in Luxembourg, in a face-to-face Skype setting: the participants are in the same room but do not interact verbally, they only interact in writing over Skype. Three types of data were produced: text (the Skype conversational log), the video recording of the participants' screens (which also includes the surrounding speech and sound) and the video of the two participants in front of their computers. Using the tools of conversational analysis (Sacks, Schegloff and Jefferson 1974), our analysis shows how the written Skype interaction affords language learning at several levels: the learner has more control over the interaction (what to focus on, how to express the trouble), has access to a wider range of resources (e.g. symbolic resources, internet, etc.), can repair the trouble as it happens and can have several tries (the video of the screen shows the learner writing and then deleting elements in the Skype text box), can take the time he/she needs to prepare a response, etc. The exchanges over skype afford resources which allow the learner to expand his/her territory and have more presence in the negotiation of the interaction. The participants, although deprived by the face-to-face oral interactional resources, are connected at the interactional level and achieve learning.

Paper Session 8: Multimodal approaches in assessing teachers, students and trainees

Chair: Robert Reuter (University of Luxembourg, Luxembourg)

Friday, August 31st, 13 30 – 15 00
MNO 1.010 (MNO Building)

Towards an new method to determine factors of coach-client-relationships in coaching conversations

Pablo Pirnay-Dummer (Brandenburg Medical School Theodor-Fontane, Germany)
Susanne Günther (University of Passau, Germany)

Training new coaches is a complex task with a significant focal point on proper guided conversation (Stein, 2004). Although conversation plays an important role within the training of new coaches and it is a key aspect to supervision as well, approaches of a systematic mixed-method-analysis of the conversations with regards to their process, content, and aspects of relationship are rare. This is even more surprising given the integral key position of this aspect of their training. Having a method at hand that is easy and fast to conduct and allows for an in-depth qualitative interpretation of the conversation, educational institutes could greatly benefit from this.

In our study, we conducted an automated semantic analysis that is usually used for knowledge management in companies (Pirnay-Dummer, 2014) to cluster and map the processes, contents and aspects of relationship of coach-client conversations led by trainees. Using this approach can help with the transparency of different and important theory-guided facets to be found within the professional dialogue. The facets are defined and guided by dialogic discourse. The quality of the communication regarding process, content and coach-client-relation is part the coach-approach as dialogic discourse as introduced by Stein (2004). The elicitation of such semantic structures an asset in identifying the theoretical and practical competences of the trainees, for guiding a coaching, feedback and formative evaluation.

The sample of our study contains the integrated semantic analysis of transcripts from 42 audio protocols that were recorded during coach-client-interactions led by trainees in coaching. The sample consists of 14 coaches (11 female and three male), from six different years and classes. The trainees conducted the supervised conversations as part of their training to become a certified coach. The recorded sessions are between 10 and 15 minutes each, and they are part of a larger coach-client conversation of about 90 minutes.

All students have been trained by a German organization which is certified by a large commissioned coaching association (DBVC – Deutscher Bundesverband Coaching e.V.). The qualification is a DBVC accepted advanced training certificate and is controlled by select quality guidelines by the organization.

The analysis first creates semantic clusters from word-matches and then uses computer-linguistic approaches to create association nets (similar to concept maps) from the clusters. The clusters aggregate semantically highly similar texts, and a k-means cluster analysis is used to identify a fitting number of clusters and to assign individual transcripts to the semantically nearest cluster. Afterwards, the clusters are integrated into one graphical model that consists of a different color for each cluster. From the integrated map we can see how the different content-clusters spread and how well they integrate. The associations at the graphs are identified and weighed by

verb bindings in the syntax structure of each sentence. This leads to association strength between 0 and 1 for all concepts within a individual text. The higher the weight indicated at each link, the stronger the association is. Only associations above a certain threshold get represented. Thus, only the most important associations within an individual conversation are represented in the graph. After the computer-linguistic analysis, the exploration of the graphs is conducted hermeneutically and inductively based on relevant theories and approaches

Two graphs are constructed. One graph shows the aggregated and clustered content of the coaches, the other graph shows the aggregation and clustered content as spoken by all the coaches. Both graphs have been translated from German for your convenience. The analysis of both graphs is used to explore the use of theory within the coaching-process, conversation processes, and relationships between coach and client.

Please find the two graphs at:

<https://www.dropbox.com/s/2xbxo00bd0kwqkv/EARLI-2018-SIG10-Figures.zip?dl=0>

The graphical output can help the trainers with planning the next steps and with giving feedback to the individual trainee regarding to the process, the content, and to aspects of the coach-client-relationship. It also allows for researchers to track the concepts of the theoretical foundations and their transfer into practice in order to describe how and to which extent they influence decisions for dialogue.

Tracing Learning Activities Across Policy and Practice - A study of how educational policy can be translated and redefined in classroom practice

Magnus Hontvedt (University of South-Eastern Norway, Norway)

Kenneth Silseth (University of Oslo, Norway)

Tine Prøitz (University College of South-Eastern Norway, Norway)

Prior research has shown that policy does not structure practices in schools in any straight forward manner (Fink & Stoll, 2005). In order to understand the complex relationship between policy and practice, we need to examine how values and ideas that are inscribed in policy documents are enacted in classroom practices.

In order to address this issue, we analyse a case of process-oriented writing in a secondary school. By employing a sociocultural perspective on learning (Greeno, Collins, & Resnick, 1996; Vygotsky, 1978), the main aim of the paper is to examine how inscriptions about assessment and learning outcomes on policy level are interpreted and enacted in the case under consideration.

The data that we analyse comprises documents, field notes from lessons, interviews of students and teachers, and video from the writing project. The analysis aims to display the teachers' formation of the instructional design, and how this played out in the classroom. We will in particular focus on the students' prepared talk, which they filmed by the use of their mobile phones.

In the following table, we present how this phenomenon emerges on different levels.

Tracing process-oriented writing across levels	Data analyses
Classroom: Students use two days of mid-term evaluation on process-oriented writing. The students watch a segment of the popular TV series <i>Shame</i> , which is about an incident of naked photos being shared on social media. The discuss the episode in groups and video record their talk on their mobile phones. Later on they engage in individual writing about the episode, in which they receive written feedback on OneNote from the teacher.	Student texts, video and teacher interviews
Teacher team: A teacher who attended a state-initiated training program about process-oriented writing initiated the making of a locally adapted version of this method.	Field notes training materials and teacher interviews
School: The school leader encourages teachers to attend external training programs and monitors new practice.	Field notes and interviews with school leaders
School curriculum: In the teachers' introduction to the writing task, they explicitly cite the Norwegian curriculum.	Document analysis
The textbook publisher: The publisher of the class' textbook provides a suggested design for the process-oriented writing day.	
The Norwegian Directorate for Education and Training: A similar instructional design is published on their website and provides guidance on peer assessment.	

Through this analysis, we show how combining analyses of policy documents, such as curriculums, with participant observation, qualitative interviews and video analysis from schools offers both opportunities and challenges for investigating the intricate relationship between governing and everyday life in schools.

Building a corpus of such cases can provide insight on the socio-historic origin of types of school practice and increase understanding on how national policy traverses between levels. Providing better insights into governmental attempts to influence practice for the improvement of teaching, assessment and learning of all students is of great social benefit.

Learning Partners with Similar and Different Personalities: The Impact on interactions

Freydis Vogel (University of Nottingham, UK)

Samson Edein (Technical University of Munich, TUM School of Education, Germany)

To benefit from collaborative learning, students must engage in interactive activities such as asking and answering questions, explaining, or argumentative discussions (e.g. Chi & Wylie, 2014). Not much is known about the relation between the combination of different learner characteristics and their use of these activities. The learner's extraversion (NEO-FFI-30) could be one facet of the learner's personality that has an impact on the collaborative learning process. One can easily imagine that one introverted and one extraverted learner learning together would behave different from a pair of two introverted or two extraverted learners. Yet, research connecting personality with group effectiveness has had only mixed results (Emerson, English, & McGoldrick, 2016). This could be attributed to empirical studies investigating effects of personality on learning outcomes without considering the combination of different learners and the learning process. This paper investigates the impact of the

combination of different learner characteristics in respect to extraversion and the use of interactive activities during learning.

Overall $N = 40$ university freshmen took part in the study. The study took place in a two weeks preparatory course for math students at a German university. In four sessions the learners were grouped in pairs alternately with similar and different learning partners regarding their degree of extraversion. In each session the students learned collaboratively by solving mathematical proof problems. Extraversion and the use of interactive activities during the learning process were measured with six respectively nine items on a five-point Likert scale.

A repeated measures ANOVA revealed that learners used significantly more interactive activities when paired with a similar learning partner regarding extraversion ($M = 3.21$, $S.E. = 0.06$) than when paired with a different learning partner ($M = 3.07$, $S.E. = 0.07$), $F(1,39) = 7.20$, $p = .01$, $\eta^2 = .16$. There was no significant effect for the time point of the measurement, $F(1,39) = 0.35$, $p = .85$, $\eta^2 < .01$.

This study gives insights into the impact of grouping learners with similar or different personalities on the collaborative learning process. The results show that learners with a similar degree of extraversion tend to use more learning beneficial interactive activities during their collaborative learning process (Chi & Wylie, 2014). This means that in education teachers and designers of collaborative learning environments should consider the learners' personalities when grouping them together. For further research, it would be important to investigate to what extent learners grouped with similar or different personalities might need different types of support to benefit most from the collaborative learning process. Further analyses of the recordings from the collaborative learning process will provide more insights how learners use the interactive activities differently.

DATA SESSIONS

Data session 1: Analyzing young children's engagement and understanding during circle time

Marjolein Deunk (University of Groningen, Netherlands)
Mayra Mascareño (University of Groningen, Netherlands)

Thursday, August 30th, 11 00 – 12 30
MNO 1.040 (MNO Building)

In Early Childhood Education, language and literacy instruction is often provided within teacher-managed whole-group activities (de Haan, Elbers & Leseman, 2014; Kelly & Turner, 2009). According to sociocultural theory, learning takes place when the (intermental) understanding of the group shifts towards the (intramental) understanding of the individual (Vygotsky, 1978). In theory, whole-group learning activities allow participants to establish and maintain a shared framework of understanding throughout the activity (Mercer, 2002). In practice however, engagement and understanding of individual children during whole-group activities may be less optimal. Because teachers cannot monitor all children consciously, they may not always promptly help children to reconnect to the activity and the shared framework of understanding. This will negatively influence the learning opportunities whole-group activities could offer.

We will use data of circle time in 4 Dutch preschool classrooms (children aged 2;6 to 4;0). The data consist of video recordings of the group, complemented with individual audio recordings of in total 30 focal children (Deunk, 2009). The whole-group interactions are transcribed using Jeffersonian conventions. The audio recordings allow researchers to hear contributions of individual children during circle time, which are on occasion inaudible for teachers. Individual children may take part in the collective interaction (e.g. when given the floor), contribute in parallel (e.g. providing an acceptable answer softly), show unnoticed misunderstanding (e.g. providing an unacceptable answer softly or contributing outside transition relevant places), or stay silent. Both the children's (dis)engagement with the collective interaction and tokens of (mis)understanding are of interest. In this data session we will propose a way of representing and analyzing the data to discuss with the audience.

The unique combination of video recordings of the classroom and individual audio recordings renders data that can provide insights in the learning opportunities of whole-group activities.

Data session 2: Doing desk talk in secondary school

Karianne Skovholt (University of South-Eastern Norway, Norway)

Marit Solem (University of South-Eastern Norway, Norway)

Rein-Ove Sikveland (Loughborough University, UK)

Elizabeth Stokoe (Loughborough University, UK)

Thursday, August 30th, 15 15 – 16 30
MNO 1.010 (MNO Building)

How can we train student teachers to be effective in their assessment practices? This is one central question in the NFR-financed research project CAiTE (Conversation Analytic innovation for Teacher Education: Research-based training for enhancing assessment and feedback quality, 2018-2021). CAiTE aims to enhance the quality of teacher education and improve teachers' assessment practices by developing, evaluating and implementing a new research-based instruction method, CARM (Conversation Analytic Role-play Method), to train student teachers' feedback skills. In this data session, we will present episodes from desk talk in a secondary school classroom. The activity 'desk talk' refers to the interaction between teachers and students when students are working with a task, either in pairs or in groups – and the teacher is making a round to provide feedback. The selected extracts represent approximately 10-15 hours of video-recorded desk talk interactions in Norwegian and Science classes. The data were collected in 2017 and 2018 and form part of a larger corpus collected for the NFR-financed project LOaPP (Learning Outcome across Policy and Practice). The corpus comprise teacher-student interactions collected from three secondary schools in Norway.

At this early stage of the project, we are interested in different aspects of the interactions – from their overall structural organization – to how (and if) teachers' pose questions and provide feedback that support students' learning. The project group primarily use Conversation Analysis (CA) to analyze social interaction.

Data session 3: High Intensity Learning? A video-study of academic achievement and physical activities in a 4th grade math class

*Magnus Hontvedt (University of South-Eastern Norway, Norway)
Ingeborg Krange (Kristiana University College, Norway)*

Thursday, August 30th, 15 15 – 16 30
MNO 1.030 (MNO Building)

Children's body weight is increasing all over the western part of the globe (WHO, 2016; Nishtar, Gluckmann & Armstrong, 2016). This is astonishing because this condition correlates with a rise in cardio-metabolic risk factors that might lead to diabetes, heart disease or stroke. Initiatives have been introduced to reduce this tendency such as nutrition programs and encouragement to increased activities in early age.

The large intervention project, HOPP, is aiming to increase physical activity as an integrated part of working with school subjects (Fredriksen et. al, 2017). Seven elementary schools with children aged 6-11 (n = 1545) and two control schools (n = 752) are followed over seven years by regularly measuring different individual medical aspects (e.g. BMI, waist circumference, muscle mass, percent fat). Teaching programs with concrete learning resources are developed in e.g. math and English, and these are adapted to support the curriculum at different levels.

Hearing about this project, we became curious about what type of learning that takes place when students are involved in these physically active activities wanting to investigate how they interact with the subject domain, the learning resources and the social settings where their actions are carried out, plus what the teacher's role is during these events. We filmed 6 groups of 4th graders accomplishing mathematical tasks at one elementary school. In this data session, we will share four smaller videoclips, supported by transcripts, divided equally between two activities: 1) a "tag" oriented activity where larger groups of students are using playing cards for giving mathematical content to this physical event, and 2) an activity where pairs of students find and assemble Pokemons based on mathematical criteria.

Data session 4: Epistemological beliefs in interaction. How can we look at the interpsychological plane?

Martín Vergara Wilson (Pontifical Catholic University of Chile)

Christian Sebastián (Pontifical Catholic University of Chile)

Macarena Sanhueza (Pontifical Catholic University of Chile)

Juan Andrés García (Pontifical Catholic University of Chile)

María Rosa Lissi (Pontifical Catholic University of Chile)

Thursday, August 30th, 15 15 – 16 30
MNO 1.020 (MNO Building)

Epistemological beliefs are the understandings, premises or propositions about knowledge and learning that people have and feel as true. Since teachers who operate with more developed epistemological beliefs tend to promote better learning in their students, it is a highly relevant objective that future teachers get to sophisticate their beliefs. Several studies suggest that this is not achieved.

Like every knowledge structure, epistemological beliefs develop and can change. Such (trans) formation, following the Vygotski's general law of cultural development, will occur as a result of an internalization process: an intrapsychological reconstruction of an activity that was first realized with others. Thus, a group solving a task acts as a unique psychological subject, displaying beliefs of a higher level of development than those observed in the participants. This socially distributed belief, assisted by the task, establishes a level of potential development for the individuals in the group. But, how do we observe a distributed psychological process in an interacting group, particularly a distributed belief?

In a microgenetic study we tested different strategies that would promote more developed beliefs by randomly assigning small groups of undergraduate students to one of four experimental conditions, comparing individual and collective performances of each group. Individual performance in two epistemological beliefs questionnaires was taken as the actual level of development. But, what should we consider as the level of potential development? Should we take the highest level that each participant reaches in interaction, or the one reached by the group? What is the level of development reached by the group, the highest observed or the one that achieves consensus?

We will present video excerpts and transcripts of interactions of experimental groups, to discuss different ways of observing and accessing distributed knowledge.

Data session 5: Dealing with new demands in teachers' work: Trajectories of four teachers' professional development

Antti Rajala (University of Helsinki, Finland)
Kristiina Kumpulainen (University of Helsinki, Finland)
Anu Kajamaa (University of Helsinki, Finland)
Jasmiina Korhonen (University of Helsinki, Finland)
Riikka Olkinuora (University of Helsinki, Finland)

Friday, August 31st, 13 30 – 15 00
MNO 1.030 (MNO Building)

A global trend of reforming schools relies on accountability policies that leave little scope for teachers' pedagogical judgement and professionalism (Biesta, 2010). A major concern is that such policies overlook a broad range of teachers' concerns regarding their everyday work while adapting to change. In contrast, Finnish teachers continue to have autonomy to design their teaching and assessment based on their professional judgement. Thus, Finnish schools provide an intriguing setting for examining the diverse ways in which teachers deal with the demands to reform education.

This study examines four teachers' trajectories of professional development during the uptake of a new digital learning environment in their school. The study asks: How do teachers face new demands that challenge what matters to them in their work? How do the motive-demand dynamics in the teachers' work delimit or provoke their professional development?

We draw on the cultural-historical concepts of demands and motives, referring to culturally and institutionally shaped dynamic elements, which mediate activity, learning and development (Hedegaard, 2012). Tensions in the motive-demand dynamics are central to understanding learning and development in the cultural-historical theorizing.

The data derive from a socioeconomically heterogeneous comprehensive school in Helsinki. The school had recently introduced a digital platform (FUSE) featuring learning challenges. Students choose what challenges they want to work on, when, and with whom based on their interests. The data comprise video-records (85h) and multiple interviews of seven teachers followed weekly while working in FUSE. Four teachers were selected for closer study, using the principle of maximum variation. The video data is analyzed with interaction analysis methods (Jordan & Henderson, 1995) and tracing trajectories of professional development over time. Our analytic approach is abductive, involving repeated iterations between theory and data. In the data session, selected video excerpts illuminating professional development will be made available for joint analysis.

WORK IN PROGRESS

Work in progress 1: Context of blended and problem-based learning: effects and implementation

Chair: Charles Max (University of Luxembourg, Luxembourg)

Thursday, August 30th, 15 15 – 16 30
MNO 1.040 (MNO Building)

Student-to-Student Interactions and their effect on the development of economic competence

Christin Siegfried (Goethe-Universität Frankfurt, Germany)

Meanwhile economic competence is seen as a core component of general education systems (Dubs, 2011; Kaminski, 2001). Thus, most German states' school curricula take the development of economic competence into account. Despite that, studies report that young adults show a severe lack of economic competence (e.g. Hoidn & Kaminski, 2006).

Referring to a constructivist's understanding of learning (Piaget, 1989) the communication of individuals with its environment (other learners) is crucial for the co-construction of knowledge. Different perspectives and approaches can be addressed and connected to existing prior knowledge or caused cognitive conflicts (Piaget, 1989) stimulating critical reviews and revision of one's own knowledge (Cazden, 1988). Hence, potential effects of the related verbalization exist for the verbalizing person itself (Dörner, 1976) organising and structuring their own explanations or argumentation and for its classmates supporting an intellectually higher level of interaction (Forman, 1989). Therefore, particularly group discussions including explanations and argumentations are seen as profitable for learning outcomes (Chinn, O'Donell & Jinks, 2000).

Therefore, in the present study student-to-student interactions are investigated in the context of problem-based teaching in economics, since it might forces students' cognitive activation. The overall teaching process of 10 classes over 90 minutes is videotaped and analysed.

Implications of Blended Language Learning: A Case Study of a University in Malaysia

Siti Shukor (University of Warwick, UK)

This study set out to evaluate the use of MyGuru in particular and blended learning in general. A mixed methods design was used, involving a triangulation of surveys, interviews, and observations. 300 questionnaires were administered to students from the six intermediate classes and 16 questionnaires to language teachers. 15 students, seven teachers, and two MyGuru support officers were interviewed and two classrooms were observed. Data obtained from the triangulated methods were then collated using a Cultural Historical Activity Theory (CHAT). In this study, CHAT allowed a focus on teaching objectives. Teachers were pragmatic, had instrumental goals but wanted to develop communicative competence which went beyond the curriculum. They saw MyGuru as a tool to help with reaching these objectives. For instance, students were encouraged to participate online for communicative purposes and try online exercises to reach instrumental goals. However, there were tensions within the

activity system which limited the contribution of MyGuru. For example, there were issues in the technical functioning and the capacity of the community (teachers, students, support workers) to support its use. Some of the teachers' objectives collided with student learning objectives i.e. some students had an instrumental orientation to language learning that led to the minimal use of MyGuru. A blended approach to learning has much to offer language teachers and may be seen as both a reinforcement of practice (or existing rules) with a potential for disruption leading to new practice. CHAT enables us to see this potential but also the tensions and constraints.

Work in progress 2: Rethinking the old and the new

Chair: Constanze Tress (University of Luxembourg, Luxembourg)

Friday, August 31st, 11 00 – 12 30
MNO 1.020 (MNO Building)

Develop a comprehensive analytical framework for bilingual (BL) and multicultural (MC) schools

Laura Kirss (University of Tartu, Estonia)
Ülle Säälik (University of Tartu, Estonia)

There are very few comprehensive conceptual approaches available that allow analyzing the factors affecting the functioning of multilingual and multicultural schools. These existing ones tend to be too general and their applicability for analysis remains limited for several reasons. This research, first, addresses the problems with the current approaches proposed by Baetens Beardsmore (2009), Baker (1996), Mehisto (2015), and Hornberger & Skilton-Sylvester (2003). Then, it discusses the possibilities of developing these further for analytical purposes and intends to propose a revised tentative version. This type of analytical tool is useful for both policy makers and academics dealing with multilingual and -cultural schools - it helps to design policy, revise it and guide also policy evaluation. Estonia is currently making steps to try to desegregate its education system by researching opportunities for establishing multilingual and -cultural schools and developing suitable school models for these purposes.

Revisiting the concept of sociocognitive conflict from a Vygotskian perspective

Christian Sebastián Pontifical Catholic University of Chile)
María Rosa Lissi Pontifical Catholic University of Chile)
Martín Vergara Wilson Pontifical Catholic University of Chile)
Macarena Sanhueza Pontifical Catholic University of Chile)
Juan Andrés García (Pontifical Catholic University of Chile)

From the seminal work of Doise and Mugny it has been recognized that socio-cognitive conflict is a process of social interaction strongly associated with phenomena of change in human beings. The first works were placed in the Piagetian tradition and therefore this change was conceptualized in terms of cognitive development. Subsequently, this line of research has been extended to show how socio-cognitive conflict promotes the learning of school content, to the extent that a series of requirements are met both in the learners and in the teaching situation.

This more recent literature explains the effect of socio-cognitive conflict on learning from an approach that continues to be Piagetian: change would occur as an internal reorganization of the knowledge structure that entered into cognitive conflict. Social interaction would have as its main—if not only—function to make this conflict stronger and more inescapable, thus making restructuring more likely.

This interpretation has been criticized in various research contexts, since it fails to explain the character of cognitive novelty, or authentic construction, of the newly formed knowledge structure as a result of the learning process.

In this article we will develop the thesis that a Vygotskian explanation of the process of knowledge structure's transformation within the framework of socio-cognitive conflict has two great advantages over the classical Piagetian explanation: i) it effectively solves the theoretical problem of authentic cognitive novelty in a learning process; and ii) It allows to recognize the specific function that social interaction has in the human learning process. For the argumentation work of this thesis, we will study in depth the Vygotskian concept of internalization.

POSTER SESSION

Chair: Asa Makitalo (University of Gothenburg, Sweden)

Thursday, August 30th, 13 30 – 15 00
MSH Black Box (MSH Building)

Bilingual practices as a resource for peer-learning?

Martin Schastak (German Institute of International Educational Research (DIPF);
IDeA-Research Center, Germany)

In an era of global migration educational institutions are oftentimes facing the challenge of serving students with naturally acquired bilingualism. Bilingual children proficiently exhibit bilingual practices switching between and mixing their languages (Grosjean, 2013). Except for some bilingual schooling programs, institutionalized learning is generally monolingual (Tollefson, 2008). Following the basic idea of the Interdependence Hypothesis (Cummins, 2006), the heritage language of bilingual children could be a resource for academic learning. There is preliminary evidence showing that encouraging bilingual students using both their languages is positively associated with different aspects of cognitive and academic achievement (Worthy et al., 2013). However, the empirical evidence is scarce and stems mostly from case studies.

Peer-Learning seems to be a promising method for integrating bilingual practices in learning. Johnson and Johnson (1999) postulate, inter alia, beneficial interaction and social-communicative competence as basic elements for effective peer-learning. Therefore bilingual practices could be a helpful tool to improve these two features in peer-learning.

Findings concerning the following questions will be presented:

1. *What is the prevalence of bilingual practices in peer-learning where students are encouraged to use them?*
2. *Which characteristics determine the prevalence of bilingual practices?*
3. *Is there a relation between students' perception of peer-learning and the prevalence of bilingual practices?*
4. *In which forms constitute and which functions serve bilingual practices in peer-learning?*

The sample includes n=54 Turkish-German bilingual elementary school children in grade 3 and 4. These children participated in an after-school peer-learning intervention consisting of 12 sessions lasting 45 minutes each focusing either on reading or arithmetic strategies. The available data includes transcribed peer interaction of one complete session, standardized assessments of language competencies in German and Turkish, questionnaire scales focusing on motivational /attitudinal dispositions, and background data. The analyses will be embedded in a mixed methods sequential explanatory design.

Space as a catalyst of a sustainable smart school environment Systemic conceiving and achieving of conviviality for the school of the 21st century

Melissa Bellesi (University of Luxembourg, Luxembourg)

Rifkin's (2016) study about a Third Industrial Revolution highlights the intelligent convergence of areas such as ICT, robotics, space design, energy, innovative materials ... It also evokes an imminent transformation of the conception of a building in general, and thereby of school space in particular. This object is a multidisciplinary challenge involving concerns such as improving the quality of life of users and thereby commitment and identification.

Our research proposes the tools necessary for a reworking of the existing school building in stages to tend towards an ideal of construction that the buildings to come can immediately embody.

In order to provide teachers with more opportunities, more flexibility, the space must become a fundamental element of pedagogy, and act as a third teacher not to replace a teacher but to support it in his projects and what he undertakes (Durpaire & Mabillon-Bonfils, 2017). Sustainability, flexibility, well-being and citizenship are the guiding words that must govern the project, aiming to offer buildings with a long life cycle, flexible and adaptable easily, appropriated by both teachers and students, and playing a role in the project. Particularly by proposing shared spaces or services in the spirit of a circular economy for high schools for example, while including an upstream reflection on the insertion of the building both in its role and in related issues to its status, its aesthetics or, and this is another important point, an urban mobility that must imperatively change in the light of the challenges ahead. Another key element is equipment allowing the use of new technologies. The latter being constantly evolving, the design must not only integrate the current possibilities, but it must already think a margin for future developments. Finally, the well-being of occupants is an important element of our thinking.

Our goal? It is double.

First, we aim to create a framework for all actors in the school space. On the one hand, by relying on effective consultation approaches (Montag Stiftung, 2017), part of the framework will be dedicated to a guide frame for the effective and systematic implementation of a real co-design including the faculty from the outset. This element will provide all the elements necessary for the establishment of a good consultation, with the necessary presence of such and such actors according to the different stages of the project and the essential points to raise at each of them.

Most of the framework will be dedicated to design teams and decision-makers not aiming to constrain them but to guide them in the different stages, by presenting concept patterns and key elements to be respected or included in their reflection.

One of the key elements of this part is the reflection related to mobility, and therefore to a necessary overall reflection at least at the scale of the district to not isolate the building on a parcel.

Finally, for an optimization of the established and concerted devices, a last part will be destined for the teachers and will allow them to suggest all the space and material possibilities offered by these new buildings, proposals of organization (not to respect religiously but simply for be inspired by it), and other useful elements to enable them to really create their pedagogy, to differentiate their practice and to use all the possibilities that are offered to them.

Secondly, we are working on the implementation of a school building evaluation tool. This tool will be particularly useful as part of the renovation of existing buildings

by making it possible to establish an inventory of fixtures in different elements to aim to act on the most problematic and to create schedules of intervention adapted to each building. If such global tools have been tested in the past (Cleveland & Fischer, 2014) and that currently some tools allow to deepen certain areas to be evaluated (the energy class or the well-being of the occupants for example) none is at the same time deep and comprehensive in each fields we have selected.

Thus, our work aims to make teaching a rich and diversified element, leaving the freedom to teachers to adopt work in groups, in autonomy, interdisciplinary or more classical, and to alternate the practices as much as they wish. The space is at the service of the smooth flow of learning and the well - being of all. Collaborative gardens on roofs in the spirit of urban farms, intergenerational projects, workshop with municipalities or society, optimized use of new technologies under optimal conditions of use, adapted outdoor work spaces, repair workshops open to the inhabitants... all these elements must be able to find the possibility of being realized in a sufficiently adapted and flexible architecture.

Scoring rubrics as communication tools in higher education grade delivery

Janna Meyer-Beining (University of Gothenburg, Sweden)

Face-to-face grade delivery in higher education is an educational practice that remains underexplored. In this research project, I investigate the use of a scoring rubric as a tool for communication in this type of institutional assessment interaction. Scoring rubrics – lists or tables containing institutional criteria for the assessment of student work – are usually scrutinized for their adequacy as diagnostic tools in evaluation. Alternatively, research focuses on the pedagogical benefits of employing scoring rubrics in formative assessment settings (Reddy & Andrade, 2010; Jönsson & Panadero, 2013, 2017; Dawson, 2017). In this project, I am specifically interested in the ways in which teachers in a summative assessment setting employ the document in their efforts to establish and move forward the assessment delivery activity.

Using data from nine video-recorded grade conferences conducted at the close of a seven-week graduate module in Environmental Engineering, the study approaches talk-and-interaction on display in these meetings from a socio-cultural, dialogical perspective (Linell 1998; Mäkitalo & Säljö 2002). The analytical focus is on mapping participants' physical and verbal orientation to the scoring rubric across the data. This is expected to lead to a better understanding of the work the document allows participants to achieve. Preliminary results suggest that scoring rubrics fulfill both concrete interactional and more abstract communicative functions in these meetings. When teachers turn to the scoring rubric in search of new topics for discussion, the scoring rubric takes on mnemonic and structuring functions. The scoring rubric can further be used to stress the professionalism of institutional assessment, provides general concepts for discussing specific issues, and thus allows teachers to engage with summative and formative assessment action in parallel.

Educational issues for Arab refugees in Luxembourg post the Middle East political transformation

Haythem Badawi (University of Luxembourg, Luxembourg)

Since 2011, the political transformation in the Middle East led to the significant flow of migration and asylum seekers to Europe. Among them, the Arab-speakers (mainly

from Syria and Iraq) whom represents the majority of the newly arrived population to Luxembourg.

To integrate in Luxembourg, they had to face the challenge of the unique multilingual situation. On one hand, only the people who speaks at least one European language had an easier path to face this multilingual challenge. On the other hand the majority did not learn at all the Latin alphabet as a start (mainly older generations) due to the heritage of the education system in the country of origin which used the Arabic language as a main language of instruction.

The bright side of whom arrived with children, that the younger they are, the easier for them to learn the language since they joined the Luxembourgish educational system on an early stage

In this paper, we are trying to find out how the language learning is playing a role on the integration of the Arab speaking refugees, taking into consideration the age brackets. Moreover, how this facilitated them to find an employment opportunity or to be engage in the social and political life in Luxembourg.

From School to Work: Representations and Lived Experience of Young Apprentices in Vocational Education and Training (VET)

Constanze Tress (University of Luxembourg, Luxembourg)

The doctoral project “From School to Work: Representations and Lived Experience of Multilingual Youth in Vocational Education and Training (VET)” aims at exploring how the social role and value of Luxembourg’s current VET system is conceptualized and imagined by actors and institutions in the media, politics and education on the backdrop of its ongoing reform towards competency-based teaching and training organized in modules (MENFP 2006, MENFP 2008, Houssemand et al. 2016).

For this purpose, a bipartite and complementary methodology is taken. First, a corpus of newspaper articles and policy documents since the reform’s draft law in 2006 is compiled and inspected under a (critical) discourse-analytical and linguistic lens (Fairclough 1995, Bacchi, 2009, Spitzmüller & Warnke, 2011). Representations and problematizations of VET as well as their corresponding semantic dimension, i.e. terms, tropes, topoi and presuppositions emerging as central, are identified, put into relation and contextualized with respect to the current European educational discourse on the modularized transmission of competencies and skills and the devaluation of ‘knowledge’ in VET.

Second, a fieldwork phase aims at investigating how media and policy discourse relates to the lived experience of local actors based on the case of apprentices and teachers in one vocational program at a Luxembourgish public secondary school. By means of participant observation and narrative interviews, the project inspects how these actors perceive public discourse, if and how it affects their decisions and interactions in the classroom and at the workplaces, as well as which kind of positionings they are able to articulate for themselves and their educational trajectories.

This project seeks to serve as guidance for the conception and calibration of future interventions in VET by raising awareness for the crucial role of language, not only as an important part of the competencies to be learned in vocational programs, but also as means to valorize or devalue learners and their abilities, to frame and to set limits to perceptions of self, of what ‘working’ and ‘learning’ is and can be. Moreover, this project envisages to enrich the social sciences’ current critical assessment of a marketization of (Higher) Education in self-declared ‘knowledge economies’ (e.g.

Bartlett et al. 2002, Boden & Epstein 2006, Robertson 2008, Shore 2010) with the perspective of VET.

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