

## English summaries

**Arvid Löfberg:** Abduction as a philosophy of knowledge as well as a research method

A challenge for theories of knowledge and philosophy is the relation between the world we perceive around us and knowledge or ideas about this world. What is it that we see? And how is what we see transmitted to mental images. Perception has therefore been seen as an important question within psychology. The question of what characterise the world we see comes to the foreground. Neurophysiology has developed during recent years and can identify where in our brain different perceptions are located. This development will continue with more and more refined knowledge of our brains functioning identifying neurons and locations in the brain where much of our perceptions take place. But this research can never answer the question **what** we see and perceive or answer the question how we build or construct knowledge of our world so that it becomes understandable and manageable for us as human beings. In this article I therefore discuss abduction as a possible theoretical point of departure to understand how we as humans with our way of perceiving the world we live in have been able to emerge as thinking individuals and social beings. In this part of the article I lean heavily on thinkers and researches such as Charles Sanders Peirce's pragmatism, Jean Piaget's constructivists theory of knowledge /learning and also on James Gibson's research on perception. The pragmatic philosophy of Richard Rorty contributes by his global view on human knowledge.

The idea of emergence in contrast to the idea of development is central to my discussion in this article. Gibson provides us with the concept of abduction, that is how we as humans relate to our perceptions of the world around, providing us with a context that provokes action from us as perceiving individuals. Piaget's research shows us how the child in interaction with his or her environment emergences as a knowing and knowledgeable person. Connecting these thought structures with Peirce idea of human

thought as constituting three phases, that is firstness, secondness and thirdness where thirdness is our theoretical understanding of the world, secondness is the world we perceive and firstness is the world we assume is there for us to perceive, it is possible to conceive how we as humans in fact emerge as thinking and reflecting subjects. As humans, based on our actions within the world we perceive, we actually expand the world we have knowledge about. The world around us becomes more and more differentiated as well as an environment we know more and more about. We emerge as humans in the world that is ours to live. Development on the other hand implies growing towards a final stage for example adulthood or maturity. With the concept of emergence there is no final stage and is in line with the pragmatist Richard Rorty in his philosophical discussion of the growth of human knowledge.

We as researchers, within the field of pedagogics mainly focus people's relation to the world around and conditions for different actions, thereby providing empirical data for research. The abductive reasoning about humans' construction of knowledge is also applicable to the researcher who focus conditions for individuals' construction of knowledge and action. In other words, the researcher is a participant of the object of research. What people perceive and what they understand of their life environment becomes a focus of interest that includes the researcher as well. Pedagogical research becomes in this sense an ambition to try and understand how people's life world i.e., the world that constitutes the base for their actions, emerge. I propose that by developing abduction as a research method we may have a tool that facilitates this ambition. The assumption is that we as humans construct our knowledge, learn how our life world is constituted, where abduction is a reasonable concept, and that abduction can become a fruitful tool to try and understand this process of knowledge construction. In this connection I discuss data from different sources that can be of interest, such as literature, the public debate, and different groups' participation in different activities. Here I connect to Richard Rorty and Chong Ho Yu "Dancing with the data".

**Corrado Matta:** The methodology of interpretation and selective abduction

In this article, I discuss the foundations of interpretation considered as a methodological approach. Both social and educational research have a long tradition of ascribing the concept of interpretation a pivotal methodological and theoretical role. Many authors have argued for the centrality of the concept of interpretation in educational theory. Furthermore, several popular

methodological approaches in educational research operate assuming the explicit aim to generate interpretations of human action.

In the article, I discuss the concept of interpretation from a methodological perspective, arguing for two main theses. According to the first thesis, every interpretation is, both in the everyday and scientific use of the term, the conclusion of an abductive inference. According to a common conceptualization, which originates in C.S. Peirce's work, abduction is a reasoning scheme involving two premises – consisting of a set of observations and a theory that is assumed to explain the observations – and a conclusion stating the theory is (tentatively) true. Several scholars have stressed the creative dimension of Peirce's conception of abduction. The function of this inferential scheme is to discover new and innovative explanations, and not primarily to produce justified or credible theories. This creative dimension is still nowadays considered central by contemporary theoreticians of abduction.

The second thesis that I argue for is that when interpretation is used as a methodological tool, it must rest on a special form of abduction, i.e., selective abduction. Selective abduction entails that several hypothetical theories are compared and that the theory that best explains the observations is accepted. Selective abduction can, if considered as inference to the best explanation, be conceptualized as focusing on justification rather than on discovery. From this perspective, the application of selective abduction is supposed to generate credible theories. In the more recent discussions about abduction selective and creative interpretations have been considered as describing two distinct and opposite inferential schemes.

In this part of the paper, I provide an argument that the reasoning that is typical of interpretive approaches in the social and educational sciences cannot avoid a contrastive, comparative and thus selective dimension. To interpret is in its essence to compare. I do not challenge that claim that the aim of interpretive research could be the discovery of new explanations. Instead, I argue that even if it is assumed that creativity is the general epistemic goal of interpretive theorizing, this process of theory building cannot avoid a selective dimension. Creative abduction, when applied to methodology of interpretive theorizing, is selective.

My argument has some methodological consequences that I discuss in the concluding part of the article. First, a consequence of my argument is that interpretive theorizing puts every interpretive theory in a theoretical context. Interpretations cannot exist in isolation but gets their content in relation to other concurring interpretations. Researchers using qualitative interpretive methods should make this context explicit, to make the content of their interpretative theories clearer and their methodology more transparent. Secondly, it is easy to interpret Peirce's original inferential scheme for abduction as suggesting that, when creativity is the main aim of interpretive theorizing, justification and credibility are not important. My thesis that

interpretive theorizing is an inherently selective process highlights the centrality of justification and credibility appraisals. The generation of interpretive theories involves an important testing dimension. In this way, the selective character of abduction in interpretive methodology expounds how justification and discovery are equally central in the process of theory construction.

**Inger C. Berndtsson & Monica Vikner Stafberg:** The contribution of lifeworld phenomenology to abduction within pedagogical research: the example of becoming a teacher

In this article abduction is discussed within a lifeworld approach for empirical research in education. The aim is to identify and describe how abduction could be used as a methodological tool within a lifeworld approach, but also to discuss how this clarification could be used more generally within pedagogical research. The research questions are: 1) which elements could be described as abduction related to analysis and interpretation within a lifeworld approach? 2) What kind of results are possible to obtain through the use of abduction within empirical lifeworld phenomenological research? A study about lived curricula and becoming a teacher is used throughout as an example of how abduction could be used for the purpose of lifeworld analysis.

The theoretical basis for the lifeworld approach and the use of abduction within pedagogical research is to be found within the phenomenological and hermeneutic philosophical tradition. The concept of the lifeworld is of particular importance, putting forward the intermingling between life and world, subject and object, individual and society, et cetera, as a kind of pluralism. Of special importance for the used empirical example is also the theory of the lived body, developed by Merleau-Ponty, and intersubjectivity. Methodology used in the study is primarily lifestory narratives, which have been transcribed verbatim and then analysed within the frame of the lifeworld, where the theory has been used as a kind of lens for analysing the material. The guiding star is openness to the studied phenomenon. We argue that in the lifeworld approach there already exists a tradition or methodological praxis, very similar to the use of abduction in educational research.

In this article several approaches are identified and articulated as included in processes of abduction. First and foremost, abduction is characterized as a kind of closeness to the studied lifeworld. It deals with elucidating the taken for granted, where one tries to grasp the meaning of the studied phenomenon and conditions for existence. The researcher's preunderstanding is here important as a prerequisite for understanding the others' lifeworld.

The process of abduction is to a large extent characterised by a hermeneutic analysis where the phenomenon is interpreted as an intermingling between lived life and lifeworld theory or philosophy. Through phenomenological theory also aspects of existence come into focus. It deals with having the studied phenomenon articulated and viewed in new and perhaps not earlier identified ways. The analysis is primarily featured and identified through an intermingling between theory and the narratives, but also through the use of aspects of understanding and explanation, in a kind of mix. The described phenomenological concepts were used in the abductive process in the empirical study elucidating various ways of becoming a teacher.

Rickards story is an example of interpretation and abduction where life and world are intertwined. His lifestory is understood in terms of trajectories when he becomes a teacher. Despite from the teacher education's plans for education, so called the normative trajectory, Rickard's trajectory is about health and feelings. Rickard probably moves in several educational trajectories at the same time but his way of becoming a teacher is dominated by the health trajectory. To become a teacher, as Rickard tells us, could be understood in the lived perspective, as a lived body in the world where he exists. In Rickard's trajectory we can identify new knowledge in the meeting between theory and practice, in an abductive attitude – like a commuting movement.

Finally, there are contours of five educational trajectories with different properties: a normative trajectory, an unhealthy trajectory, an emotional trajectory, an ambitious trajectory and a misleading trajectory. Students probably belong to several educational trajectories at the same time. A clue to understand the becoming of a teacher could be to understand the lived perspective of students. These trajectories are new knowledge in the meeting between theory and practice.

**Jutta Balldin:** Noticeable movements: on abductive thinking in educational research

In this article I aim to explore abduction as a scientific tool for the social sciences and for educational research in particular. My ambition is to shed light on abduction as a specific and durable attitude to human life and knowledge construction – an opening of doors into human acceptance of the limitations of our knowledge and the continual change of natural phenomena beyond human truth. The dynamic object of abductive research demands of the researcher a creative mind to be able to withdraw a reasonable hypothesis. Abduction is a sensitive and long-term type of research that offers no determined conclusions or secured methods, but according to the founder of

abduction, Charles Sanders Peirce, is the only type of research that can produce new knowledge.

Peirce's preoccupation with knowledge production and the limitations and possibilities of human knowledge is not educationally contextualised by Peirce himself, although it approaches the same questions about human conditions as the ones troubling pedagogues and educational researchers. From within this coinciding field of interest I would like to emphasise triadic knowledge production as contrasting the dominant position of general, abstract knowledge and put forward sensation as the basis of human knowledge. To Peirce (1891), a feeling is an isolated state of mind, as well as reflecting human reaction to natural and cultural phenomena. The truth of nature is accessible to humans through sensations only. Further on, I describe and reason about the connection between the triadic epistemology of Peirce and abduction as research, thereby translating the role of sensation in knowledge production to the attitude and openness of the abductive researcher. In order to give these connections clarity, the article is built up in three parts.

In the first part I describe the triadic knowledge production structure defined by Peirce (1892) as 'the law of mind'; a triadic and continuing mental process that starts out with a sensation of a quality (firstness), through an element of reaction (secondness) and ends with generalising or the making of common concepts (thirdness). This triadic mind process is continuous and reflects the continuous changing movements of nature. The human being is in Peirce's synechistic perspective part of the world's coherent all, and our sensations reflect the connection we cannot avoid but constantly escape through the conceptualising of thirdness. Firstness is the element that hosts the clue to the truth, and although humans cannot grasp this with their conceptualised knowledge, it represents the element of possibilities. Secondness, on the other hand, is the element that exceeds the duality of feeling and concept, while reacting to how feelings and ideas correspond, or not. With the conceptualising of secondness, knowledge is kept open to changes in line with a changing world and human meaning making.

Inspired by the American philosopher Elizabeth Cooke and her reading of Peirce, I describe and reflect on three steps within abductive reasoning that connect triadic knowledge production with abductive research. A playful attitude, successive questioning and sensitive speculation are all characteristics of abductive reasoning, but also controversial acts in contemporary research. They all seem to match badly with pre-planned research projects, which demand pre-posed aims and questions, as well as pre-viewed and generalisable conclusions. To Peirce, these pre-determined ways of conducting research block the way to new knowledge, while an open, creative attitude makes room for and notices sensations and reactions as parts of human knowledge-making. Cooke (2006, 2018) argued that these seemingly indeterminable

phases are marked by reason and direction by way of the experiences and ideals of the researcher.

In the third and final part of the article I aim to strengthen the abductive steps and methods in a speculation about my own fieldwork on preschool children's journeys on a bus. The young children's common reactions to the world are here interpreted following the principles of abduction and with the attitude of a sensitive and playful researcher. In this part I describe how questions are formulated successively and according to reactions between people and various phenomena. My attention and questions are in turn characterised by an attitude towards the children's acts as important to their emergence in the world. The speculation of what is at stake assumes a careful interpretation of the children's acts as expressions of their experiences of travelling through their city surroundings. From their expressions and my own experiences of the journey I speculate on the event using Peirce's triadic law of mind and geographic concepts as space, spacing and choreography, to thereby suggest an explanatory relation between the children's reactive movements, a re-construction of space, and knowledge construction. An educational hypothesis of learning beyond educational places is formulated by putting together and reasoning using the three concepts of social choreography, space making, and room for action.

**Birgitta Qvarsell:** On abduction – in educological research and educational practice

This chapter treats the relationship between abduction as a methodological device in social research and educology as an academic discipline. It might be appropriate to say some words about the term educology and its relationship with abduction. This ambition calls for some definitions although I usually am not convenient with definitions. My own interest within what I prefer to name educology concerns primarily childhood culture and the possibility to interpret its importance with the help of theories of socialisation and knowledge formation, which in my case have an origin in psychology of perception and philosophy. Abduction is a necessary approach in educology and this combination points to important new ambitions in research as well as practice. This theme brings to the fore problems of research related to other disciplines, primarily psychology but also social anthropology and sociology. When theory is discussed for educology, it is important to consider that concepts like ideology and practice in the empirical world which offers data are very near in this scope of concepts. Central concepts and how they may be used in various contexts, e g developmental tasks, meaning and

affordances, intermediate domains and times, generative themes and how to make people aware of e.g. their rights and possibilities, to take some examples. The problem of creation of data in abductive research is important to consider, e.g. how you proceed from data to theory, or diverse, in the variation and multitude of impressions, perhaps via so called convergent operations. The article treats specifically an evaluation project that became a research task. In the text I use a project called Folk Project where we developed means to detect and interpret children's ways of understanding what is of priority in their own world and their contacts with other children as well as adults.

The Folk Project as an empirical basis in practice oriented research shows variation of data and of perspectives. It also varies according to quality and quantity as dimensions in educological research. In this context I have taken up some important thinkers and authors who are not always acting within the discipline of Educology, or even the educational sciences, but being rather important as challengers in a broader sense. As theoretical tools I use the theories of James Gibson (1989) and Eleanor Gibson (2003) who both take up the affordance phenomenon as a means to interpret what is inviting for perceptual tasks. As a more explicit educational device I take up Paulo Freire's thoughts (1971 and 1993) about the generative aspects of various situations and tasks. This combination of perceptual and educational aspects runs in well suited tasks for children learning to read as well as for adults learning to understand written texts.

I finish my article with a view towards future development, pointing out possibilities to broaden as well as focusing new important challenges, without losing scientific ambitions.

**Margareta Aspán:** Children as naughty or creative agents. Using the abductive strategy to see in new ways

In this article one focus group interview from previous research on a school-project is discussed. The project concerned students' experiences of artistic education, in which professional artists were teaching. By using Charles Sanders Peirce's idea of *abduction* this interview with four young children is re-interpreted. Instead of considering the interview as being totally out of the scope of the research, what was happening can be set in new perspective out from the abductive analytical approach. The unexpected form of children's agency is reconsidered, and the children are no longer appearing as naughty girls and boys. Instead, the relations between the children are seen as agentic and as a starting point for challenging the relation to the adult as well as the norms in school, and thereby also the children's conventional subordination.



In the empirical example the children are creative in their using of the material for drawing, and they are plying the line for the, in school usually, 'forbidden' pictures and words, and they are playing with their voices and make quite a lot of noise. But scrutinizing the transcriptions closely, it also shows that they are partly following the adults' intention and actually make contributions to the research but in a broader sense. Instead of sharing their experiences of the art-project, they perform playfully, in their peer-culture, meaning-making around their own child position, and in this play the aspect of power is challenged.

With a theoretical standpoint in childhood research, the intension with the study's ethnographic approach was to come close to children's experiences. The abductive strategy (Paavola, 2014) was used for to go back to this, at first glance misconducted, focus group interview. By using other analytical concepts for interpretation, here *aesthetic sublation* (Ylönen, 2021), the situation is re-contextualized. Hence dimensions of children's agency as well as their possible resistance towards the adult's intention becomes salient.

By applying the concept or *aesthetic sublation* (Ylönen, 2021) the communication and relations within the interview turned out to be possible to interpret as a process of self-creation in which what is seen as 'disgusting' places the children out of reach from the adult order. Children's agency can be expressed in different ways and to recognize these variants the researcher's openness is required.

The article approaches the question of ethnography as abductive in itself, as it requires an open-minded and not fixed expectation of the phenomenon of interest. In the ending discussion pragmatism is related to what abduction – and recontextualizing – can bring forward in terms of new possibilities to understand the practical consequences of meaning-making.

**Susanne Andersson:** Perspective shift as an abductive method to explore frustrations

Abduction is described by Peirce as a process that arises when the researcher encounters something that is puzzling in an empirical material and which, after some thought, contributes to the emergence of new ideas that can be investigated further. Despite Peirce's extensive publications dealing with this process, he is extremely frugal in providing methodological advice on how to move from something puzzling to new insights. Peirce's concept of habituation can provide some guidance, which according to Peirce means that the researcher needs a readiness to think in new ways, i.e. an ability to constantly learn in order to develop new thought patterns where inspiration

can be obtained from a variety of materials and people. This article presents a shift of perspective as a method which can help the researcher with the moving from limiting to new thought patterns. The method initially means that the researcher stops at the statements and reflects on her/his own perspective, in fact her/his own thought patterns formed from previous experiences. The own understanding is then placed in relation to the perspective from which the interviewee speaks, which is also shaped by previous experiences. How to use the method is illustrated on the basis of an ethnographic interview material with older male community police officers that tells about the new organizational practice that arose with the community police reform.

**Ann-Christine Vallberg Roth:** Abductive analysis in collaborative research: A focus on didaktik<sup>1</sup> models in preschool

Abductive analysis is linked to the concept of abduction, which focuses on interpretive processes that create meaning, moving between empirics and theory on encountering unexpected results. In addition to the fact that abduction can deepen and change current research in pedagogy and didaktik, abduction can also constitute an approach that is related to democracy. Shedding light on abductive analysis in collaborative research is important in that it regards all participants in collaborative research as knowledge users and potential knowledge developers, potentially leading to multivocal traces in the analysis. In this way, the possible multivocality of collaborative research holds democratic potential. In addition, democracy can be found in abductive analysis that results in didaktik models that unite multivocal practices and theories. In this context, there is a need for abductive studies conducted over long periods of time in collaboration between, for example, preschool teachers, leaders and researchers.

The article provides examples of abductive analysis tried out in collaborative research in two large-scale research and development (R&D) programs. The programs were implemented over a six-year period, with two consecutive three-year periods between 2016-2018 and 2018-2021<sup>2</sup>. The empirical data in the R&D programs were generated over long periods of time and assessed against several theoretical perspectives, in line with abductive analysis.

There is a shortage of abductive studies focused on practice-based didaktik models in preschool. This article gives examples of abductive analysis that result in "multivocal didaktik modeling". Multivocality entails multiple voices being included in both practice and theory. In the R&D programs, the

participants were involved in question formulation, method design, data generation, co-exploratory conversations, and analysis. Didaktik models can be both verbal and graphic. Two classic didaktik models are didaktik questions and the didaktik triangle. The models can provide support for teachers and leaders to make didaktik choices.

This article reveals the contribution of abductive analysis to the development of multivocal practical-theoretical models in collaborative research. The purpose is to provide knowledge about abductive analysis in collaborative research, with a focus on didaktik models in preschool.

When teaching was written into Sweden's governing document for preschool in 2010, an uncertainty emerged as to what teaching could mean in preschool. In response, it was determined that education and teaching should rest on a scientific basis and proven experience. It turned out that there was a deficit of both teaching-oriented, Nordic research and of proven experience of teaching in preschool. A mismatch emerged between governing documents, research and practice. This mismatch was a driving force behind the R&D programs in which preschool teachers and leaders, from 18 municipalities and school authorities, raised questions about what characterizes teaching in preschool.

Abduction, as described in the article, requires that we pay attention to nuances in empirical material and try approaches that in being multivocal at both the action level and the (meta) theoretical level are democratic in nature. In the complex reality of teaching in a preschool, a multivocal rather than unilateral approach favors nuance over reduction and creates conditions for contributing knowledge at both the action and the (meta) theoretical level about the complex nature of reality. In other words, the logic of abduction can add a critical, nuanced and openly change-oriented dimension to didaktik collaborative research within the framework of democracy.

The contribution of this article lies in abductive analysis having been tried out and proven to be feasible in large-scale R&D programs over a six-year period. Abductive analysis in collaborative research makes it possible to generate research findings that include empirical examples, proven concepts and didaktik models. Having the abductive analysis replicated in two R&D programs strengthens credibility, generalizability and usability. All in all, the abductive analysis resulted in “multivocal didaktik modeling”, which could be related to democracy.

## NOTES

<sup>1</sup>In this article the German word “didaktik” (with use of the letter k) is used, which is common in continental Europe and the Nordic countries. This term is distinct from the Anglo-Saxon word “didactics,” which refers to a narrow way of teaching, for example, learning-outcome oriented teaching.

In the article, collaborative research refers to research conducted in R&D programs (ibid). The article uses the third-person plural “we” instead of “I” to emphasize that didaktik models have been tried out in collaboration.

<sup>2</sup>The article has been written within the framework of the R&D programs Teaching in preschool (Undif) and Multivocal teaching in preschool (Fundif) in a collaboration between 18 Swedish municipalities, the independent Institute for innovation, research and development in school and preschool (Ifous) and Malmö University (Mau). The study was co-financed by Mau and the 18 municipalities. The research group thanks everyone who participated and contributed with funds, materials and views in analysis and discussions. The peer-reviewed article in this themed issue is based on a scientific report that was reviewed by Professor Stig Broström at Aarhus University in Denmark (Vallberg Roth et al., 2021).

**Linda Wilhelmsson & Ulla Damber:** Abduction as an Alternative In Didactic Research

This article aims to highlight how abductive logic may contribute to didactic research. The relationships between practice and theory are important as conditions for scientific knowledge production. More specifically the relation is important for practitioners' possibilities to experience that the research is relevant for them. Design-wise abduction contributes to placing reflection on relationships between theory and practice in the foreground. In the article, the relations are discussed as challenges linked to utility of didactic research and how research may be made available to practice. With this, we aim to contribute to a discussion about methodological considerations in didactic research. Earlier, the importance of theoretical choice has been illuminated in terms of the applicability of theories in practice, and choice of methods has primarily been described in action research and learning/lesson studies. In collaborative projects between researchers and practitioners' questions have been raised about who formulates the research question, who is responsible for the design, and who benefits from the results. Metatheoretical points of departure and methodological issues in a more general sense have not, however, drawn significant attention. In a rapidly changing society, like ours, demands are constantly made on education and teaching to be reviewed and reshaped according to needs and demands that are formulated at different levels, both by practitioners, principals, and politicians. Phenomena studied in education are complex, thus, creating specific conditions for understanding and explaining those phenomena. Education involves cultural, psychological as well as physical, and external factors. Abduction may counteract too narrow understandings and explanations in research on teaching, by focusing on continuous development. Thus, the knowledge contribution may be formulated as didactic models and, or, concepts that contribute to the

analysis, planning, and development of teaching. We provide examples from two different dissertations to illustrate how research background, selection of participants, settings, analyses, and contribution of knowledge may turn out in abductive processes. The two dissertations are of different character. One of the dissertations displays abductive processes from the start in describing and analyzing how students' influence on their education may work. The other dissertation displays three studies on literacy practices, how they may be described by use of statistics, students' voices, and teachers' voices, where the abductive process rather got visible over time. In the final discussion validity and availability are given special attention and we hope that the article may contribute to a discussion of how the utility of didactic research may benefit methodologically and be strengthened by the employment of abduction. We claim that the validity of didactic research constantly must be tried and questioned, as the utility of the research may not be taken for granted. Research in the field of educational science is expected to respond to demands of proven experience and scientific principles. Design in didactic research needs a methodologic approach where the outcomes of research can be a common concern. Nevertheless, that working teachers have opportunities to take part in and employ novel research in their teaching could be an aim for researchers in the field of education. Another important implication that evolves in the article that is interesting is the possibility of a critical stance towards the influence of external factors and discourses that may affect how students' life chances are manifested, when didactic issues are considered. Critical realism may provide such space and the role of abduction promotes possibilities to challenge questions concerning evidence-based practice that could be narrowing the scope of research. Hopefully, our article will stimulate a further discussion among the readers and create interest in some of the ideas and procedures that abduction involves as one way to bridge the gap between practice and research, as well as concerning issues of power in the teaching-practice and dealing with power relations between researchers and practitioners.