Epilogue

Design beyond the classroom and for the future of learning

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In this volume a group of researchers have illuminated a design-oriented perspective from a variety of interests and starting points. Here we will reflect upon the Designs for Learning-perspective—in and beyond the classroom—with an orientation towards the future.

Learning in different, and intersecting, contexts

In Chapter 1, Selander describes the Learning Design Sequence model which is used throughout this book. The three versions—the non-formal, the semi-formal, and the formal models—can be addressed one by one, in different research or development projects. The decision on which version to adopt depends on the context of the project. If the project includes an interest in how learning might occur in settings which are not designed with formal learning as their aim (as in a school), the semi-formal or non-formal LDS models are the most relevant. It should also be noted that one profound idea behind these versions of the model is that even if a situation is not designed with formal learning as its aim, the design of the environment and the resources still affect the opportunities to learn.

An example of a semi-formal learning context would be when the first author (Boistrup) took a stroll in a coastal area. There she found that the municipality had installed informational signs describing an archaeological find, a wreck from the 15th century, recently discovered by scuba diving marine archaeologists at the bottom of the sea just nearby. Here the installation was designed with visitors' potential learning and interest as a clear aim, and the designers had included several modes, such as a text with different fonts, pictures, and diagrams. The centre of the largest sign was a transparent circle, with the silhouette of an island and an additional painted arrow, helping the spectator to identify the location of the wreck. For the visitor, the learning was facilitated by the design of the information, without any requirement to actually “learn” anything about the wreck or about this specific historical period of time, as probably would have been the case in a formal context.

In addition, our contention is that a DFL perspective is also helpful in analyzing learning across different institutional settings, where the design of the formal setting is influenced and developed, with guidance, drawing on learning affordances found outside the school (see Chapters 5, 7 and 8, this volume). We can also observe that strong traditions in a given area may restrict what can be visualized by the participants, for example, when a tradition of learning by printed texts excludes multimodal representations, or when viewing the world through a mathematical lens precludes an aesthetic appreciation. In such cases, discussions with professionals in other settings such as between teachers and museum workers, or the use of artefacts and resources from non-formal or semi-formal contexts, may affect a new design that goes beyond such traditions. One example is Chapter 8 (by Insulander & Öhman, this volume), where the teachers were inspired by the museum staff when developing programming activities with students in school. Another example is Chapter 5 (by Boistrup & Hällback, this volume), where the formal learning of mathematics was inspired and transformed by a vocational knowledge area such as hair or makeup styling. For future learning, we see great potential in such transformations where the attention is not on only one of the LDS-sequences, but on two or more.

Educational research taking new steps

Research in line with Designs for Learning was initially carried out to conceptualize learning in the intersection between multimodal, social semiotics, and a sociocultural approach, based on qualitative research inspired by ethnographical and other approaches including field studies (Selander, 2017; see also Chapters 2 (Lindstrand & Selander), 3 (Lindstrand), 8 (Insulander & Öhman) and 9 (Insulander & Svärdeemo-Åberg) in this volume). Over the years, we have also developed research carried out *with* professionals, instead of *on* them (see, e.g., Chapters 5 (Boistrup & Hällback), 6 (Kjällander), and 8 (Insulander & Öhman), this volume). This development also included a stronger focus on research ethics. Chapter 4 by Åkerfeldt and Boistrup outlines how this development can create tensions in relation to current formal requirements of ethical approval, but also how a DFL perspective facilitates ethical quality in research, such as when professionals become actors in the research project, instead of “objects” being researched. Thus, the DFL perspective is different from the kind of design research where a researcher designs a certain model to be adopted in teaching, and where the teachers are instructed as to how to carry out the teaching, so that the researcher can conduct analyses *on* the data collected.

Thus, we not only study the conditions for learning and learning processes, but the actual processes themselves. We also have an interest in taking part in practices for change, keeping an eye out for constraining frames, power relations, diversified interests, and moments of friction (see also Dorst, 2015; Marion & Fixson, 2018). As we see it, DFL-inspired research in collaboration *with* professionals facilitates educational research to take new steps. The Learning

Design Sequence considers the complexities of education, with the setting (including resources, curriculum, institutional norms and regulations) and the transformations during activities, such as in lessons. The multimodal approach clearly includes interactions in educational settings, where meaning-making is communicated through a broad range of modes such as body movements, speech, figures, and the like. When professionals are part of the research project in collaboration with researchers, it is even more likely that the complexities of educational settings are integral parts of the research, and that the research becomes relevant to the particular context being studied.

Stability and change

Social practices can be characterized in terms of stability and change. We have layers of rules and regulations, traditions, habits, and norms, as well as metaphors and classifications that influence our being in the world, our organizations, ideals and ways of thinking (Bourdieu, 2010; Douglas, 1986; Douglas, 1996; Kofman, 1993; Lakoff & Johnson, 1980). However, this does not mean that societies reproduce themselves “exactly the same.” It is, for example, not difficult to notice drastic changes after periods of war, or by way of major scientific breakthroughs (Badiou, 2012). More difficult is to capture the stream of ongoing, small and accumulated changes, which happen in both social communication and acting (Geertz, 1993; Gustavsson & Selander, 2011). In this book, we have tried to elaborate further on processes with a focus on communication, meaning-making, and learning sequences within different settings.

In our view, Designs for Learning is a perspective that covers both structures of stability and processes of change. The design perspective looks at factors that frame activity settings and thinking, and it is also sensitive to spaces of agency and how material and semiotic resources are used. With this attention, the perspective can be elaborated in different ways (as can be seen in Part II of this volume).

Learning, teaching, and research in a digitized era

It is not too much to say that the network society and Artificial Intelligence (AI) are profoundly changing our society and conditions for living, learning, and working (Castells, 1998; Ford, 2018; Susskind & Susskind, 2017). This means that schools are changing as well, and many of us may notice an increased anxiety, perhaps even fear, about what is going to happen in our society. The changes seem as pervasive as those when the agrarian society became industrialized. At that time, one of the answers to the increased social tensions and the need for new, structured knowledge was to build up a school system. However, this does not imply that the school “as an answer” to the problems of the industrialized era is also an answer to the problems of the emerging, hybrid society. It might, in fact, be the opposite.

We, as editors and authors of this volume, rather think that it is time to discuss fundamental questions for teaching and learning, without dreaming of the good old days of stability (and were they always that good?). The kind of school that prepared pupils for that labour market may even not be relevant for today's society, where only a tiny portion of the population actually seems to be able to get regular jobs. We must ask ourselves: What learning is necessary? What does it mean to learn core knowledges? What will be the future of teaching, and who will be the future teachers? And what are the things they should be able to do? We, as researchers, also must ask ourselves: what will the future of research be about? Will there be a role for research in innovative designs for learning?

Well, of course, we both hope and think so, but then we need relevant methodological and theoretical tools. We must not only be able to study what people think and reflect upon, but also to study their actions. We should also shape such tools through which we might be able to collaborate with different professionals in learning designs and detect learning sequences and knowledge representations in all their richness—not only those aspects that can be assessed through the standardized test procedures of the current school organization. Today most discussions about learning seem to refer to such test procedures, which means that learning is coupled with the market principles of doing your best in each situation, no matter what that might be in terms of content or knowledge. If we want to focus on knowledge, skills, and *bildung*, including the competences to act and to reflect, creativity and collaboration, knowledge about scientific and aesthetic fields, and the ability to handle tricky problems along with environmental demands, then we must ask ourselves what that could mean for the future organization of learning. Our hope is that the DFL perspective is a way to frame research which focuses on such current challenges.

Dynamic and innovative designs

To develop research that can be part of innovative designs and processes of change is a challenge. It will not be easy to do. It will involve a new kind of scientific openness, including ongoing internal and external dialogues, as well as the novel involvement of professionals in research, and of researchers in relation to professionals within other fields. We need to think anew the work that already has already started in terms of 21st century skills or competences. It is our hope that this book will serve as an inspiration and as a systematic grounding for doing 21st century research.

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