Chapter 11
Responding to Wicked Tensions and Problems in Practices-Developing Research

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Abstract Experiences from practices-development research, as presented in Part II of this book, identify what we call *wicked tensions and problems* (Bentley J, Toth. Exploring wicked problems: what they are and why they are important. ArchWay Publishing, 2020). The experienced team from Sweden, Denmark, and Norway have collaborated for many years with early years teachers and the early childhood education and care (ECEC; i.e. in these national contexts, preschool/kindergarten) sector in their efforts to respond to societal problems alongside practitioners. Enhancing meaningful practices in the ECEC sector by creating relevant academic knowledge for and within this sector is a policy expectation in response to the wicked problem of societal problems. In the effort to do so, our experience is that even if this effort is rewarding and new knowledge is created and practices are transformed, a range of tensions occur already from the start of new projects, and we encounter problems we cannot solve as they lie outside our immediate responsibility. Additionally, collaboration can risk violating the standards of research and the traditions of education. This chapter draws on examples from Part II of this book (Wallerstedt, Brooks, Ødegaard & Pramling, this volume). While the projects reported on vary in pedagogical themes, sites, and participants, they share a participatory research design in their efforts to respond to challenges and develop practices while undertaking research. The chapter first elaborates on the nature and challenges of wicked tensions and problems and thereafter identifies some of the tensions and problems reported. The aim of the chapter is to articulate the tensions and problems on a meta-level for further efforts of partnership research. The vision for knowledge development entering practices-development research from the reported projects is clear and similar across the projects. The common vision is to nurture practices for long-term knowledge gains. In this chapter, we suggest that experiences and reflexivity from the collaborative Scandinavian milieus across these proj-

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ects can articulate some wicked tensions and problems and improve knowledge in this regard. The chapter provides a summary list of recommendations for stakeholders to consider when planning and conducting participatory design research.

Introduction

While the co-creation of knowledge between different stakeholders, such as academics and staff at early childhood education and care (ECEC) institutions, does not come easy, efforts to do so can be rewarding (Coburn & Penuel, 2016; Von Heimburg et al., 2021; Ødegaard, 2021). Even if there is a long tradition of including 'practices' in the domain of 'knowledge' through methodologies like experiments, observation, notetaking, and descriptions, there is a range of stumbling stones in the jungle of history knowledge (Burke, 2016). This history has articulated that, even if practices are connected to habits and traditions, they are subject to continuous change. With the professionalisation of teachers follows the development of a professional ethos: a pride in one's occupation and a loyalty to colleagues before others. Professionalisation is also accompanied by a technical language and a new regime of ignorance to certain kinds of knowledge, especially tacit knowledge – the knowing of *how* as opposed to the knowing of *what*. This chapter will further articulate the knowledge of how in practices-development research by analysing the studies presented in Part II of this book.

These projects share designs of participatory research, referred to here as practices- development research. In their efforts to respond to challenges and develop practices while undertaking research, the experienced team from Sweden, Denmark, and Norway have collaborated for many years with early years teachers and the preschool/kindergarten sector in their efforts to tame the 'wicked problem' (Bentley & Toth, 2020) of supporting early childhood education. Even if the studies vary in pedagogical themes, local sites, and number of participants, they share the approach of collaborating efforts to change practices while creating new relevant practices and knowledge. The vision for knowledge development entering practices-development research from the reported projects is clear and similar across the projects: to nurture collaborative practices for long-term knowledge gains. Considering the rather large holes in the existing knowledge base in this area (e.g. Bærheim et al., 2022), we argue that, to move forward, it is necessary to name and tame the tensions and problems in the ECEC arena.

In this chapter, we suggest that a descriptive meta-analysis searching for learning points across these studies can identify some common and unique wicked tensions and problems found in them. This meta-analysis will increase knowledge in this regard and enable us to sum up the learning points. Based on our findings, we present recommendations for future projects involving teams of collaborative partners in the ECEC sector. The chapter starts by briefly elaborating on the nature and challenges of wicked tensions and problems, and thereafter identifies some of the tensions and problems reported. The chapter ends with a summary of the efforts made

to overcome the tensions and tame the problems and presents the responses in regard to further efforts.

A Long-Term Effort to Find Solutions to Wicked Tensions and Problems

Many contemporary problems in policy and management literature are increasingly characterised as 'wicked problems', meaning that they are difficult to solve (UNESCO, 2017; Alford & Head, 2017; Termeer et al., 2019; Bentley & Toth, 2020). Wicked problems present us with a number of difficult challenges. As we grapple with them, it is easy to be impatient, because wicked problems tend to be messy, ill-defined, connected to tacit aspects, and complex to understand. These problems tend to resist our attempts to solve them (wicked tensions and problems are neither discovered nor uncovered; they exist as messes, chaos, confusions, and uncertainties until somebody articulates them, takes ownership of them, and brings them into discourse). Naming tensions and problems 'wicked' will not make them disappear or solve them, but it provides a way to address them. Such efforts, made in Part II of this book, are further analysed and discussed in this chapter.

As described in the chapter 'A retrospective view on researchers' and preschool teachers' collaboration: The case of developing children's learning in preschool' (Pramling Samuelsson, this volume, Chap. 2), pioneering work was conducted in Sweden from around the 1970s and with a boost in the 1980s and the years that followed. This was a time when laboratory studies were criticised on the grounds that results could be biased due to children's many reactions to an unfamiliar laboratory milieu. At this point in history, the topics of children's rights and gender equality were upcoming discourses in Scandinavian milieus, leading to a move away from research in laboratories in favour of observing real-life events and activities at ECEC institutions. Arguments were raised regarding the importance of developing knowledge about children in settings where they were familiar with the environment and in contexts other than their homes. The inclusion of early years institutions in research led to a critique of blind spots in research methodologies and the development of new ones (e.g. Arvidsson, 1976; Jalmert, 1981). Traditional work in child development was said to be based on notions of an individual and decontextualised child, and a new contribution to the rethinking of 'development' was progressed. Children's perspectives were documented through their interactions with others in situated practices, across social contexts, and in the loci of early years institutions (preschool, kindergartens, and nurseries). This change in methodology can be noted early on among Scandinavian early years pioneers (see, e.g. Hedegaard et al., 2018; Sommer et al., 2010).

Based on her experiences of collaborations with teachers, Pramling Samuelsson (this volume, Chap. 2) described these first years as involving two parallel processes: (1) the researcher worked in a way according to which she

metacommunicated about the teachers' work with the children, just as the intention was to inspire the teachers to work with metacommunication with the children in practice. By conducting research inside the institution, Pramling Samuelsson developed (2) research designs in which the notion of the children's perspective as an expression of their views on their learning were made into research questions. As these new ideas could be challenging for the teachers, in these first collaboration efforts, the researchers served as experts, modelling and challenging the staff. The staff were involved in discussions, developing the didactic method and participating in the metacommunication with children and staff.

Even though we can find pioneering projects on practices-developing research in Scandinavia, more than 40 years later one of the dominant problems currently facing the Scandinavian preschool/kindergarten sector is the low degree of interdisciplinarity and collaborative practices, especially across academic and societal stakeholders in the ECEC sector. Research and policy documents now mention the transformative power of the co-creation of knowledge. Today, the co-creation of knowledge is often described as altering the roles of citizens, users, and professionals in ways that support sustainable public value outcomes (Ødegaard, 2021; Bærheim et al., 2022; OECD, 2018; Wals, 2010).

For years, the OECD has noted the need for continuous professional development, pointed to schools as learning organisations, and promoted their participation in research learning communities (OECD, 2016). The OECD has identified evidence in external research findings that the improvement of day-to-day practice is far from common practice. Many schools find it difficult to become 'research engaged'; reasons for this have involved a lack of necessary skills in staff, resources, or motivation. The OECD has defined a new wicked problem: How do schools become more research-engaged and confident in using research data, and how do they ensure that staff have the capacity to analyse and use data to improve and, where necessary, transform existing practices (OECD, 2016, p. 9)? They also claim that the capacity to systematically collect, analyse, and exchange knowledge and learning – whether using ICT or not – is underdeveloped.

In a literature review of research-practice partnerships in education (Coburn & Penuel, 2016), the authors claimed that we need critique from studies that attend to unintended or negative outcomes. For example, they reported that studies conducted in specific contexts focus on a narrow range of important issues (Coburn & Penuel, 2016). Although the research may inform a specific district, it may not contribute to educational improvement in a broader context.

The ECEC sector has its wicked problems, as recently noted by Cameron and Moss (2020) in the context of the UK; however, the following challenges would be recognisable in many countries internationally: (a) a system that remains split between childcare and early education, creating inequalities, divisions, and discontinuities; (b) a split and devalued workforce, overwhelmingly female, consisting mostly of 'childcare workers' with low status and qualification and low wages; and (c) a standardised, one-size-fits-all curriculum that is narrowly focused on preparing children for primary school at the expense of diversity and context, with a pedagogy

that is measurement-driven and fails to recognise or value many subtle and fleeting signs of learning that are difficult to easily measure.

The Scandinavian countries can be viewed as a contrast to the UK, as the Scandinavian ECEC sectors have succeeded in more or less taming these wicked problems, even though they cannot be completely resolved. As the following lists show, many of the recommendations by Cameron and Moss (2020, pp. 223–227) are currently mainstream policies in the Scandinavian context, while some remain a problem:

(a) The creation of a public system of early childhood education that is fully integrated, covering policymaking, administration, curriculum, regulation, access, funding, workforce, and type of provision, and is underpinned by an integrative concept and a broad concept of education working with an ethics of care, built on values of participatory democracy, cooperation, and solidarity. This is achieved in Scandinavia at the policy level.
(b) Staffed by graduate professionals specialising in work with children from birth to 6 years, having parity of status and conditions with compulsory schoolteachers, and accounting for at least 60% of staff working directly with children. This recommendation is not yet fully achieved in the Scandinavian countries, despite hard work by unions and professionals. Staff are specialised in working with children from birth to 6 years, but their status is not yet fully paired with that of teachers of higher ages.
(c) Closely connected to local authorities, who would have a rejuvenated role in planning, coordination, and support, the central government would play a reduced but important strategic role. This has been achieved in the Scandinavian countries; in fact, the research reported in Part II of this book is financed, facilitated, and encouraged strategically by the countries' governments and anchored in local authority initiatives.

As Bentley and Toth (2020) also pointed out, in the past some countries have tamed many of the wicked problems that remain in other countries, e.g. an end to child labour and the acceptance of people with different sexual and gender orientations. Comparing the UK and Scandinavian examples, we can see that the Scandinavian countries are at the forefront of working with taming the wicked problems connected to the ECEC sector, and we continue this story by examining this team of researchers' projects and identifying the kinds of tension and problems that exist.

The Creation of Tensions and Problems

Through pioneering research, reported in Part II, the authors have created a series of tensions and problems based on their own experience as leaders of and participants in a variety of participant research and in dialogue with the international literature on topics such as design research, action research, continuous professional

development, workshop methodology, etc. In the following, we discuss several tensions and problems narrated in Part II.

The Risk of Violating the ECEC Tradition in Large-Scale Interdisciplinary Research

In the chapter 'Interprofessional dialogue and the importance of contextualising children's participation: A collaboration between different disciplines around new technology', Lagerlöf (this volume, Chap. 8) reports on the MIROR Project (2010–2013), a large-scale international research project funded by the EU. The project, aimed at developing an adaptive system (using artificial intelligence, AI) for music learning and teaching in the context of early childhood music education, was based on a spiral design approach involving coupled interactions between the technical and interdisciplinary research partners. Lagerlöf reports on her experiences of partners who did not relate to Swedish preschool tradition, raising methodological challenges in the design of the experiments and technology. She also reports a tension connected to economic interest by a business partner, suggesting the presence of a crack in the underlying expectations for the project. While the Swedish partners saw children as research subjects and therefore expected the children's participation to be recognised in the methodological design of the project, this was ignored by the business partners. Thus, the partners clashed in their view of the children's role in the research. Contradictory views of children as research objects or subjects came to the surface, which led to differing assumptions about education. In large-scale EU-funded projects, the research designs are often experimental, and the assumptions presumably lie in an individual psychological or behaviourist view of learning (Lagerlöf, 2016). Research grants from the EU under previous framework programmes have brought together researchers and industry actors, from the EU and from other parts of the world, to find solutions to some problems (https://ec.europa.eu/info/strategy/research-and-innovation_en). Lagerlöf (this volume, Chap. 8) points to the dilemma of the researcher whose motives are idealistically driven, with the best interest of the child at the forefront, and business partners who are economically motivated. The issue of implementing new technologies in educational practices has been studied and found to be challenging. Lagerlöf mentions that, although experimental (or quasi-experimental) research designs are appropriate for studying the potential of specific technology applications in controlled situations, it is not easy to transfer findings from such research designs to the reality of the classroom in a preschool setting and that other research designs are needed to take account of its complexities. She claims that, when failings and shortcomings are found in implementing educational technology theory or principles, this is not necessarily due to any inadequacies in the tools; rather, too little attention has been paid to the pedagogical, organisational, cultural, and other factors that merge in institutional work and are thus decisive for what fails. What Lagerlöf (this volume, Chap. 8)

points out is that what works in education is complex and, therefore, what transfers successfully into other contexts will come with uncertainty. Business companies tend to influence and shape education decision-making and primarily work to create demand for their products, rather than responding to pedagogical ideals. This approach has implications for practices-developing research, since the teachers' requests are subordinate in importance to the technologists' desire to market their products.

The Problem of Paradoxical Mechanisms in the Migration Area

In the chapter 'Opening up new spaces for action: Challenges of participatory action research for preschool practice transformation in an introductory unit for immigrant children', Åkerblom (this volume, Chap. 6) reports from a participatory preschool practice development research project carried out between 2017 and 2019, funded by the Swedish Institute for Educational Research. The aim of the project was to, in collaboration with the participants, explore conditions for early childhood education in a migrating world by identifying the challenges facing a preschool in a linguistically heterogeneous neighbourhood of a major Swedish city. Åkerblom reports on a clash of practices and emotional grief when having worked closely with families for some time to support language and all-round development and then risking the experience of the family being sent back to their country of origin after being denied asylum. One day you're working to fulfil society's aims of supporting children and families, and the next this relationship is broken by a contrary aim of society: limited access to permanent stays (Åkerblom, this volume, Chap. 6). For societies, asylum seekers are statistics; for the kindergarten personnel and peers, refugees and immigrants mean relationships filled with emotional tensions and ties.

Another challenge addressed in this chapter was that, even though an initial important aim had been to involve the children's parents, it became clear after interviews with them that their priorities involved very different things from participating in the daily work of the preschool unit. It was not that they were uninterested in participating in the preschool development; but their lives often did enable them to work with the preschool. The parents expressed insecurity in their position as asylum seekers and as families with relatives affected by war or displacement, and the staff felt frustration at having no power to help the families in these situations.

However, challenges remain that could never be dealt with on the level of a preschool development project, but that have a profound impact on the children's lives and conditions. This situation was actualised one morning when Åkerblom came to the setting and found the adults sad and upset because one of the children had not come to the unit that morning. The reason for his absence was that he had been deported the night before, along with his mother and siblings. What happened to this child shows a major structural discrepancy between a discourse underlining the

needs of the child and the protection of children's rights and equality on the one hand, and a policy that does not provide a stable and secure environment for families with young children on the other, whereby considerations of the child's wellbeing no longer apply when a family receives a negative decision in the process of asylum-seeking.

Challenging a Superficial Collaboration by Allowing a Deep and Slow Process

In the chapter 'Mutuality in collaboration: A development project for teaching in multilingual ECEC', Kultti (this volume, Chap. 9) describes tensions and problems connected to the relationship and character of dialogue between the party who initiates the research and the participants. In her study, the initiative came from the researchers and local authorities in the region, and the participants were preschool teachers, preschool heads, and persons responsible for preschool education and children's wellbeing in six municipalities.

Kultti's text discusses the lessons learned by reflecting on the experiences of conditions for and contributions of mutuality in the collaboration. One of the lessons learned involves the cruciality of leadership, in terms of both organising for *continuing professional development* and the art of leading in ways that legitimise the experiences of the participating teachers. These aspects are understood as adding to *ownership* among the participating teachers. When evaluating the collaboration at the end of the follow-up, she describes a connection between the initial ideas and the teachers' response to these ideas. The teachers expressed a wish to have known more about the project and its aims. This project had a top-down initiation that failed to anchor the aims of all participating staff. There are lessons to be learned here about leadership, how to anchor a project, and how to strengthen ownership of topics and problems.

Kultti (this volume, Chap. 9) summarises another lesson learned, saying that a shared understanding of the project content and organisation, and thereby mutuality and ownership, cannot be taken for granted. She refers to the importance of mutual dialogue among the participants, as dialogues might have different meanings and functions for the various participant groups (Kultti, this volume, Chap. 9). From this 6-year project with six preschools in the region, Kultti has deep experience in regional collaboration, and her main point is that the leadership of a project must be systemic, meaning that it brings all groups of participants into the mutual collegial learning process in all steps and over time.

As we learn from Brooks (this volume, Chap. 7) and her team in the chapter 'Integrating digital technologies in teaching and learning through participation: Case studies from the Xlab – Design, Learning, Innovation laboratory', a project was designed as a slow and deep process. The chapter builds on experiences from a 3-year project examining how preschool and primary school educators and children

develop digital competence using key elements such as *participation*, *influence*, and *responsibility*. The design of the project involved an action research approach based on a partnership between a preschool and school district in a municipality in Sweden and Xlab – Design, Learning, Innovation, a mobile research laboratory at Aalborg University in Denmark. The approach involved explorative and reflective discussions, casual conversations, and semi-structured interviews. The point of departure was an ontology whereby professional learning was considered a form of social engagement, always subject to change, which therefore made it challenging to convey its complexities in standardised ways. Design work is perceived as a fuzzy process that emerges from and strives for co-creative 'making and breaking'. Such workshop activities are associated with active participation, in which the expressing of thoughts and ideas evolves from social demands in practice-based activities designed for creativity and collaboration.

One of the project's primary goals was to make the educators at the preschools and schools 'owners' of the situation that was causing them problems. Their efforts to solve problems were similar to those identified by Kultti (this volume, Chap. 9). The researchers aimed to understand the participants' problems and opportunities and identify how these could be approached and sustained. They spent 6 months preparing the project and included educators via casual conversations while observing how their workdays unfolded, as well as interviews and a first baseline questionnaire.

These methods enabled negotiation and sensemaking through shared practices. The researchers strived for a fluid and change-oriented conceptualisation of integrating digital technology in play and learning and thus encouraged and studied participating in collective sensemaking. Engaging educators in participation-oriented and collaborative processes through sharing knowledge and learning from each other was considered fundamental in providing the educators with tools to drive their professional learning through 'doing'. Nevertheless, the tensions identified entailed a strain between professional learning as being self-directed, which was the aim, and professional development as something that is done for them, a practice that also occurred. What we can learn from Brooks and her team is that they achieved success by taking their time and ensuring ownership of the project among the educators. It takes time to develop self-directedness and a shared ownership of problems and to identify a process of working to solve or tame them.

Power Balancing: The Tension Between Co-learner and Co-expert

In the chapter 'Managing the tension between the known and the unknown in knowledge-building: The example of the Play-Responsive Early Childhood Education and Care (PRECEC) project', Wallerstedt (this volume, Chap. 4) highlights a challenge in how to deal with the 'unknown' in a practice-based research

project, i.e. not only reproducing knowledge (further education) but also developing new knowledge (research). The Swedish Institute for Educational Research funded the project, and a premise for this funding was that the research address the teachers' questions. The project's aim was to take on the challenge of developing a *didaktik* approach designed for preschools through collaboration and empirical and theoretical contributions. While digging into the research, it became evident that the teachers had a variety of concerns and wishes: one that typically involved searching for the unknown (how play and learning can be integrated into teaching), and one that concerned searching for clarifications on what was already known – they wanted the researcher to spread (teach) the established knowledge (cf. Pramling & Peterson, this volume, Chap. 10). As the dissemination of knowledge did not constitute a research problem, the researchers were trapped in ambivalence regarding whether to fulfil the teachers' wishes or to confront and find ways to manoeuvre in a field of ambivalence: How should they deal with the teachers' wishes between the known and the unknown? Wallerstedt understood this ambivalence in connection to the wicked problem of how to generate research with findings that are useful for teachers and that will be of pragmatic validity? The problem raised by Wallerstedt is that asymmetries of power exist in educational research.

There is a long-term power relation between researchers (academics) and teachers, in which the researchers have the right to define the problems of their investigations. This situation leads the teachers to take on a subordinate role; they accept and express a wish for the research to continue, and the researchers are given the role of experts, who can share established knowledge. She points out that, in the end, the PRECEC project was led by the researchers, who invited the teachers to participate. Wallerstedt (this volume, Chap. 4) discusses ways forward, grounded in looking back at the experiences of the PRECEC project and relevant research. As Brooks (this volume, Chap. 7) and Kultti (this volume, Chap. 9) also pointed out, one should recognise that successful research partnerships across sectors depend on mutual trust, and it takes time to build this. To build trust, she suggests providing *task support*. This means that participants must have enough time to engage in the project and commit to a fair workload. They will also need *team support*, e.g. the support of group dynamics, mutuality, and cohesion.

Lessons learnt from this self-reflective chapter on the PRECEC project might also raise awareness about the researcher's role: When practitioners assign themselves the role of the party in need of competence and the researchers the role of the expert, who can disseminate established knowledge, the researchers need to be aware of this mechanism and plan for this power distribution. This does not mean that researchers should avoid being experts on established knowledge, because they are such experts; rather, they should encourage deep dialogue between the unknown and the tensions and problems of the teachers and explore how established knowledge can or cannot be met when challenged by the unknown.

Similar self-reflections can be found in the chapter 'Exploring mixed roles and goals in collaborative research: The example of toddler mathematics education', by Björklund and Palmér (this volume, Chap. 3). This chapter, however, brings up problems concerning the validity of data generation when teachers are involved.

This project was carried out by 2 researchers, 3 preschool teachers, and 27 toddlers, on the topic of mathematics: toddlers' number sense. It was funded by an agency that emphasised collaborative research between teachers and researchers to develop educational practices. Therefore, the teachers and researchers collaborated in the planning stage of the project to formulate research questions and outline the design of the project. The experiences are grounded in a 3-year iterative process of recurring meetings every fortnight. During these meetings, activities were planned and evaluated and possible learning outcomes and shortcomings were discussed, as were different interpretations of toddlers' communicative acts. The project resulted in revisions to teaching acts and activities, new ideas for how to conduct or develop an activity, and plans for a continuance of practice development. One important key for generating scientifically solid results was measuring the toddlers' learning progress. The goal of the project was to determine whether the teaching had the intended effects. To accomplish this, the process of generating valid data on the toddlers' knowledge was crucial (albeit difficult). The project's aim challenged how we can design for valid data generation. They designed play-based tasks based on the theoretical principles of variation theory of learning (Marton, 2015; Marton & Pang, 2006). The children were invited to participate, and based on video recordings of their actions, they explored the toddlers' understanding of numbers and identified what content the teaching should emphasise. The teachers were crucial in orchestrating the investigation. Björklund and Palmér make a convincing case in illustrating how collaboration between teachers and researchers can tame the problem of validity in data generation. It is not reasonable to believe that an outside researcher, who does not know the toddlers, will be able to interact and communicate with them in a way that offers them the best conditions for demonstrating their knowledge. As toddlers' expressions are often subtle and thus demand exclusive knowledge of the individual child's ways of expressing him/herself, the teachers' knowledge of the children made it possible to design for an everyday life study. The chapter illustrates how collaboration between researchers and teachers provides opportunities to bring to the fore both outsider and insider perspectives. One could say that, through exploration and negotiation, the researchers and teachers developed a co-learning agreement (Björklund & Palmér, this volume, Chap. 3).

The issue of balancing power relations was also prominent in the study of Exploration and Pedagogical Innovation Laboratories (EX-PED-LAB), discussed in the chapter 'Success of and barriers to Workshop Methodology', authored by Eriksen Ødegaard et al. (this volume, Chap. 5). This chapter reports on the emerging findings during the first year of a design- and inquiry-based research project called *Kindergarten Teacher as a Researcher*. The project was funded by the Research Council of Norway as a starting grant to support early childhood educational leaders and staff in enhancing the quality of kindergartens in close collaboration with researchers, at the same time as both partners were researching three areas of common interest: the play, exploration, and learning environment; collaboration with families; and leadership and governance. The chapter identifies a set of features for success and takeaway points for the further development of the workshop methodology. Among the tensions identified, one stands out as dominant and similar to what

is discussed in this book by Kultti (this volume, Chap. 9), Wallerstedt (this volume, Chap. 4), and Björklund and Palmer (this volume, Chap. 3): the tension connected to balancing power relations. In the chapter by Ødegaard et al., these tensions were articulated as being connected to understanding the open project approach and the participants' role in a co-creative design. The participants all had previous experience of a collaborative approach with different stakeholders; however, shared responsibility was new to them. Thus, it was challenging for the participants to find a way to take responsibility for actions and take on the role of an initiating and an actively responsive partner. Although some were self-governed and started rich in initiatives, others had an unclear association with the main projects, while still others awaited instructions and asked for a clearer design. Operationalising democratic processes based on a belief in valuing and validating teachers' and researchers' perspectives and knowledge is challenging. This difficulty was illustrated by one of the participants in this project, who stated that without the expertise in analysing the problems and the ability to develop a problem into research questions, they would have been helpless; they appreciated the responses from and initiatives by the researchers.

A finding highlighted in this chapter (Ødegaard et al., this volume, Chap. 5) is that the analytical competence of the co-researcher can be diverse; the staff found it difficult to analyse empirical data beyond the first step of locating what was going on in the data. This finding calls for an understanding of collaboration and co-creation as not necessarily doing the same thing but rather exploiting the various expertise of the different participants. A trained researcher will have the expertise to scientifically and conceptually analyse data, but when engaging in a practices-developing research project, the researchers and their competencies must fit into the new context, which can be challenging for them. As reported in this chapter, analytic competencies can be self-constrained by the researchers, for instance, avoiding lecturing, or by an uncertainty as to whether these competencies will fit into the unique context. Furthermore, the roles of the participants are intertwined and thus need to be negotiated between the partners.

The Problem of Language

In the chapter 'The importance of de-reifying language in research with early childhood education and care professionals: A critical feature of workshop methodology', by Pramling and Peterson (this volume, Chap. 10), the authors discuss tensions and problems concerning language. As we have learnt through the previous chapters, mentioned above, tensions and problems occur in the space of unequal roles and responsibilities, in the long historical tradition and discourse of researchers as the experts on established academic knowledge and teachers as the experts on everyday life and the child. Pramling and Peterson, who saw these power relations through the lens of language, point to observations experienced in workshops that are similar to those raised as a problem in many of the chapters in this book: ECEC

personnel express an expectation that the research partners should tell them what to do and how something is. According to Pramling and Peterson (this volume, Chap. 10), this expectation clashes with a foundational premise of research: that research entails generating new knowledge, which means that we cannot say beforehand how it is or what teachers should specifically do. In their chapter, they go beyond this identified challenge to theoretically analyse the language used in interprofessional communication, arguing that the language problem needs to be problematised through metacommunicating the linguistic process. It is essential to avoid constituting knowledge as objects existing beforehand to simply be transmitted from the knower (researcher) to the receiver (ECEC personnel). In other words, such a view constitutes the latter group as lacking knowledge. They make the important suggestion not only to recognise different participating groups' contributions but also to more actively and dynamically use metaphors of knowledge. They suggest that we use the notion of *knowledging* (Pramling & Peterson, this volume, Chap. 10). This concept, a verbalisation of the concept of 'knowledge', follows the academic thinking of the new concept of *languaging*, which means 'doing language'. *Knowledging* is therefore a concept that fits well in practices-developing research, entailing a collaborative dialogic activity or a process of making meaning and building knowledge through language to tame wicked tensions and problems.

The Way Forward: Revisiting Reflexivity, Balancing Narrative Knowing, and Logo-scientific Knowledge

Taming the wicked tensions and problems means acting in ways that gain some measure of control over the critical variables of difficult issues of our concern and finding how to take action that narrows the gap between the current situation and future, more desirable ones (Bentley & Toth, 2020). Through a series of long-standing project experiences across three Scandinavian countries and touching base with European projects, we have illustrated that the tensions and problems we faced in collaborating across the academic and professional fields can be summed up in five main areas:

1. A risk of violating the ECEC tradition in large-scale interdisciplinary research
2. The problem of paradoxical mechanisms in the migration area
3. Challenging a superficial collaboration by enabling a deep and slow process
4. Power balancing – the tension between co-learner and co-expert
5. The problem of language

These tensions, risks, challenges, and problems are never quite solved, fixed, or finished, or fully tamed (Bentley & Toth, 2020). We can conclude that working with practices-developing research requires that we continue to reduce the risks, disclose the paradoxes, balance power relations, and manoeuvre the tensions and problems.

In relation to tackling the wicked problems, Bannink and Trommel (2019) suggest (1) living with the problem and (2) conducting trial and error or iterative

development. The principles underpinning each of these approaches may well apply to practice-developmental teams. In our context, this suggests that staying with the trouble, adjusting it, breaking it down to smaller areas, and fine-tuning new practices as we go along can be a way forward, rather than simply claiming failure or low quality. For example, Termeer et al. (2019) suggest that identifying small wins and achievable successes, which indicate progress towards an ideal outcome, can help in this regard. The above-mentioned projects all described small wins and highlighted experiences of challenges, problems, and tensions.

Bannink and Trommel (2019) suggest that 'intelligent governance requires reflexivity, in the sense that it considers other problem definitions than the ones suggested by administrative reason' (p. 17). We could say the same from the point of departure of academic research and from practice. It is too simple to say we did things wrong or that it did not work out, just as it is too simple to claim success. A meta-level with a reflexivity of processes will benefit all partners.

Czarniawska (1997) builds on Lyotard (1979) and Polkinghorne (1987) in her claim that narrative knowing enables the negotiation and renegotiation of meaning through the mediation of narrative interpretation. Narrative knowing must stand beside logo-scientific knowledge in explanations and understandings of the mechanisms of organisations and institutions. Also, rules and traditions should be balanced with change and transformation.

Having discussed experiences of tensions and problems from a range of Scandinavian partnership projects, from small-scale to large-scale international multidisciplined ones, in Table 11.1 we provide a list of recommendations. In addition to our experiences in the Scandinavian and European projects mentioned, we are inspired by Bentley and Toth (2020), Digmann et al. (2012), and Czarniawska (1997), among others.

These recommendations can be a helpful tool in future project planning. In pointing the way forward, we create spaces for opportunities to include future successful

Table 11.1 Recommendations for taming wicked tensions and problems

Action on the meta-level	Action in research practices
Stay with the messy nature of tensions and problems – locate and articulate the risks, tensions, problems, and paradoxes – identify the spaces of opportunity	Each participant keeps a research notebook to note small and big wins (spaces of opportunity) as well as small and big tensions and problems. These can be analysed during the evaluation sessions with all partners to look for risks and paradoxes and identify tensions and problems
Own the wins and problems	All partners should care about both the wins and problems. When tensions and problems arise, blaming the other party is a dead end. When the other party successfully identifies spaces of opportunities, everyone should celebrate
Language work – create the problem	Wicked problems are not discovered or uncovered; they exist as messes, chaos, confusions, and uncertainties until somebody brings them up for discussion. It is only when the problem is created as an articulation that it will be possible to take action to make things better

(continued)

Table 11.1 (continued)

Action on the meta-level	Action in research practices
Language work – define the tensions and problems	We need to extract tensions and problems from the confusions and the chaotic messes. Defining a problem begins with clearly describing the present situation, as demonstrated in Part II
Language work – name the tension and problems	To understand and appreciate the nature of the problem, we need to communicate with others. Naming, disagreeing, and agreeing in the naming of a tension opens up thinking and understanding and creates *knowledging*
Identify the obstacles	Before we can act to improve, we need to identify the barriers to the changes
Rules, even bureaucratic ones, can be changed	Rules, even those made by authorities, are made by people and can be changed by people. If an obstacle is a rule, mitigate the risks and outline the gains for a change
Recruit, enlist, and engage others	With wicked problems, one might need to recruit persons to enact a transformation, so we need to find those who care about the emerging problems, are affected by them, have expertise and knowledge about them, and have the authority to make the necessary changes to remove the obstacles: motivated partners. Change cannot be made without engagement on all levels, or without authority
Train a mentality of perseverance, positive imagination, and grit	Real-life clashes can be emotionally demanding and need to be resolved and debriefed. Obstacles can also involve mental blocks in individuals. People can become anxious and foresee unnecessary risks, or people can be low in energy and have a reduced willingness to challenge themselves. Imagining scenarios can offer both discouragement and encouragement, depending on the character of the person's imagination. We need to understand and accept that changes to wicked problems might never happen, but that taming them can be achieved. Working with huge societal problems that we cannot control can be hard and exhausting. However, hard work can also be rewarding and meaningful; therefore, perseverance, energy, reflexivity, and actions by individuals should be recognised and encouraged. Useful tools in this endeavour include optimistic imaginations and scenario thinking and critical constructive thinking and action
Create and implement an action plan	Making good plans involves craftsmanship and must be taken seriously. The group must work together to get control over the variables in the situation and make constructive changes. These changes should be evaluated and adjusted
Create new narratives and those of innovation	People can be given new spaces of action and new tasks, which can open for new narratives. Narratives create actors with certain personal traits and spaces of action. Institutions can recognise narrative modes of knowing. Institutions can also consider whose voices and which events are currently heard and seen, and whose are ignored, and can thereby create new narratives to inspire and document innovative practices and transformation
Document, share, and engage in further dialogues and discourses	Research must always be done systematically. Designs need to involve practice-developing research partner collaborations, with meeting points and validation. Sharing stories of success and failure will not only enrich others' understandings; the process of doing so is also a learning journey in itself

transformations and pedagogical innovations. An acceptance of the messiness of real-life troubles and paradoxes is crucial, as are collaborative skills, strategies for the co-creation of knowledge, awareness of language, and perseverance mentalities, not only among the actors in the field such as researchers and practitioners but also among policymakers and partnership participants outside the ECEC field.

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