Chapter 16

Equity, Equality and Diversity in the Nordic Countries—Final Thoughts and Looking Ahead

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In the process of preparing this volume, especially in our review of previous scientific work on the Nordic model of education, it appeared that different researchers approached the topic primarily in the form of historical–political policy analyses (Telhaug, Mediås, & Aasen, 2006) and through the qualitative description of individual country portraits or the differences between these (e.g., Antikainen, 2006; Blossing, Imsen, & Moos, 2014; Lundahl, 2016). In these previous analyses, the question was raised whether a common Nordic model of education can be identified at all and to what extent neoliberal policies and broader globalisation trends affect the further development of education systems in the Nordic countries. The latter has especially been discussed in light of the increased competition between these systems emerging currently, here running against the common thread that was adopted shortly after World War II. In contrast to the works mentioned above, this book explicitly chose a quantitative empirical approach to the topic, linked with the attempt to indicate, measure and evaluate educational equity across the Nordic countries using data from large-scale assessment studies. Thus, the approach of this book was more data driven and descriptive than oriented on the political question of whether a common model exists.

The chapters in this volume mostly comprise analyses of well-established international large-scale assessments (ILSAs), such as PISA, TIMSS, TALIS, ICILS and PIRLS, all of which are assessments generating data with an especially high level of quality (Gustafsson, 2018). Their impact is mostly recognised in the context of evaluating the efficacy of educational systems, yet they remain an essential source of information in connection to monitoring student learning outcomes. The latter is especially found in the observation of the within-country achievement trendlines in areas such as reading, mathematics and science. In addition, the studies gather a large body of data in connection to the students, schools and the classrooms, while

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the scales used have been subjected to rigorous quality assurance processes (Rutkowski, von Davier, & Rutkowski, 2014), allowing for a comparison of the data across different country-specific contexts. Of course, the use of large-scale studies is not free of controversy. Despite—or precisely because of—their supranational orientation and vast use within the context of policy and decision making, they have generated a large number of discussions. In that regard, Hopfenbeck et al. (2018) talk about the massive amount of literature that criticises ILSAs and/or their impact, especially because of the way the results have sometimes been interpreted and used to introduce educational reforms (e.g., Ercikan, Roth, & Asil, 2015; Leung, 2014).

Also, an argument can be raised that such studies greatly oversimplify how educational processes are represented and depicted, showing only a narrow cut-out of the education landscape. Here, the criticism especially focuses on the lack of theoretical foundation in some of the measures being used, how student achievement is measured only for a restricted number of areas and how both these components do not allow for generalising the statements about education processes as a whole (Feuer, 2013; Hopmann, Brinek, & Retzl, 2007). Although the criticism of the quality of the measures subsides in some cases, because of their continuous improvements (e.g., TIMSS, TALIS constructs), a critique that statistical analyses allow for examining only the relationship between the input and output variables is still quite strong (e.g., the commentary chapter Sahlström, this volume). However, if one looks at the indicators typically used to measure educational effectiveness in individual countries, one quickly realises that these indicators are often not comparable across countries and that large-scale studies provide comparable indicators for certain subareas of educational processes, thus providing an important tool for diagnosing the performance and effectiveness of the educational system in individual countries. Although further discussion on these topics can be found elsewhere (e.g., Hopmann et al., 2007; Nasser-Abu Alhija, 2007; Torney-Purta & Amadeo, 2013), it is important to state that this volume also has had no ambition in claiming that large-scale assessments are the only way to provide the sources of knowledge of educational systems and its effectiveness. Rather, it promotes the idea of large-scale assessments as vital points of departure for research on these topics, here coupled with those assessments covering subject didactics in reading, science and mathematics. The choice of editors of this volume and some of its contributing authors further substantiate this argument. Furthermore, the way the idea of educational justice has been examined in this volume showcases that even in ILSAs, multiple lenses and viewpoints can be used to depict a particular phenomenon. Thus, this volume should be read as one source of contemporary knowledge about equity, equality and diversity in Nordic educational systems. In this final chapter, we provide a brief conclusion and summary of the findings presented throughout the book. Furthermore, a perspective for further research is developed following the work in this volume. The text that follows underlines implications on equity, equality and diversity, as well as the Nordic model, here against the background of the empirical work presented, along with the possible pathways for upcoming investigations.

16.1 Important Implications on Equity, Equality and Diversity

The Nordic educational systems are widely considered as rather successful in providing equal access to education and learning opportunities for all, and the Nordic countries tend to rank high on comparative measures on equity in education (Blossing et al., 2014; OECD, 2018). At the same time, socio-economic status (SES) and other background factors still influence the academic achievement of students in the Nordic countries. Furthermore, increasing diversities and social inequalities, globalisation and other changing conditions question the extent to which the Nordic countries are able to maintain a ‘School for All’ (Lundahl, 2016; Telhaug et al., 2006). In this book, it was possible to identify factors at different levels that influence the achievement of educational equity against this background.

16.2 Teachers and Instructional Quality Play a Key Role in Promoting Equity

Across several chapters, the important role teachers play in promoting equity, equality and safeguarding the diversity of the classrooms has been put to the fore. The different empirical analyses and findings illustrate that any of these three aspects are greatly influenced by what takes place at the junction of teacher professional skills and their instructional practices.

In Chap. 10, Bergem, Nilsen, Mittal and Ræder (2020) found that high instructional quality is especially important for the intrinsic motivation to learn mathematics for low-SES students in both grades 5 and 9. Because there is a strong association between SES and intrinsic motivation in mathematics, instructional quality plays a key role in compensating for this association. Further, in Chap. 9, Nortvedt et al. (2020) argued that teachers’ assessment literacy is vital for assessments to function as a means to improve equity in school. This ‘assessment literacy’ is related to both teacher beliefs and their knowledge and skills. To be able to use assessments and tests as a tool to support teaching and learning, teachers need a positive attitude towards these. Also, teachers need knowledge about the assessments and the assessment data, along with how assessments can be used to support the learning process of students. For the case of the mapping tests discussed in Chap. 9, it was argued that the appropriate use of these tests could help identify students at risk of falling behind and support these students in succeeding.

There are concerns that the focus on attribution and group membership in research means that differences and diversity are associated with problems rather than potential resources and possibilities. As an example, diversity related to language barriers and ethnic and cultural differences need to be taken into account when planning and conducting classroom activities (Robak, Sievers, & Hauenschild, 2013). In Chap. 4, Björnsson (2020) found that across the Nordic countries teachers

general self-efficacy in teaching has the most significant impact on the teachers' experienced ability to handle a multicultural setting. It might not be surprising that teachers who are confident in their general teacher competence also are confident in handling multicultural settings. Yet exposure to multicultural classes seemingly leads to more positive teacher attitudes towards diverse ethnic groups, which again is associated with a better class climate and learning environment. What is perhaps more surprising is that Björnsson (this volume) also found that more experienced teachers are less confident in handling multicultural classrooms; this suggests that for experienced teachers, professional development and in-service training related to diversity and multicultural classrooms may not have successfully targeted their actual needs and that further developments are very much needed.

Finally, in Chap. 5, Yang Hansen, Radišić, Liu and Glassow (2020) found that teacher job satisfaction is connected to certain facets of teacher quality. Although teacher self-efficacy and teacher-students relation were once the common denominators across the Nordic countries, country-specific patterns (e.g., adverse classroom composition in Sweden or teacher effective professional development in Finland) together with teacher-students relation are more decisive to teachers' job satisfaction nowadays. Taken together, both chapters strengthen the perspective that ensuring teacher quality in the Nordic schools as a tool that promotes equity, equality and diversity requires measures and teacher support programmes to be adapted to local needs, not implemented as generic models that are easy to introduce elsewhere.

16.3 The Importance of Teacher Education and Professional Development

It is first and foremost through teacher education and professional development that teachers are provided with the knowledge and skills they need to meet the high demands of a 'School for All', providing equal opportunities to all their students (Imsen & Volckmar, 2014). We highlight two chapters whose findings support this claim.

The importance of professional development is demonstrated in Chap. 7, where Nilsen, Scherer, Gustafsson, Teig and Kaarstein (2020) found that teachers' professional development enhances equity in Sweden by moderating the relation between student SES and science achievement. Both the content and number of hours of teachers' professional development seemed to reduce the performance gap between high- and low-SES students. Furthermore, Nilsen et al. (2020) suggested that the difference in quality and length of professional development in Norway and Sweden could explain why the same results are not found in Norway; they argued that enhancing teachers' qualifications through teacher professional development and specialisation may reduce the effect of students' home background on their achievement, thus enhancing equity.

Advocating for the use of national assessments in promoting equity, in Chap. 9, Nortvedt et al. (2020) argued that teachers' assessment literacy plays a crucial role and that many teachers and schools require support in developing this aspect of their competence and how knowledge of these could be further implemented in classroom practices, as well as school improvement action plans within the schools.

16.4 Ensuring Equity in Digitalised School Settings

With the ongoing digitalisation of society, ICT plays an increasingly important role in schools and classrooms. The integration of ICT in the teaching and learning process introduces another possible source of inequity and inequality in terms of teaching and learning opportunities. In Chap. 6, Rohatgi, Bundsgaard and Hatlevik (2020) found that in Denmark and Norway, there is a lack of variation between schools in teachers' access, use and attitude towards ICT. This indicates institutional or structural equality and a step towards achieving digital equality, thus reducing the overall differences between schools and giving students access to these resources, regardless of where they go to school. At the same time, the authors stressed the importance that the same can be achieved within schools. Therefore, it is crucial not only that teachers have access to the relevant resources, but also that they are able to familiarise themselves with the use of ICT.

16.5 When Reading Is Moved Online

Large-scale assessments such as PIRLS and PISA show that there is a relationship between SES and reading achievement for 10-year-olds and 15-year-olds (Mullis, Martin, Foy, & Hooper, 2017; OECD, 2019); however, in many of the Nordic countries, this relationship is weaker than for most other countries (Chaps. 12 and 14). Frønes, Rasmusson and Bremholm (2020) found that the effect of home background is similar since the first round of PISA in 2000, similar to conclusions on Norwegian trend development across reading, science and maths (Olsen & Björnsson, 2018).

What seems to be more problematic from an equity perspective is the large gap in reading achievement between girls and boys and between majority and minority students in the Nordic countries (OECD, 2019). Several PISA cycles have found that girls outperform boys on reading tests and that the gender difference is especially large in Norway and Finland. In her study of Norwegian ninth-grade students, Engdal Jensen (2020; Chap. 13) found that the gender gap increased when reading on a screen compared with reading on paper. This shows that the shift from paper to digital assessments could further influence the reading performance of different students taking the test. At the same time, Frønes et al. (this volume) found that when reading multiple texts—a text format incorporated in the more recent PISA cycles—the gender difference was reduced after accounting for SES. This shows that the

digital reading genres pose even more reading challenges for groups of students but not necessarily because of higher performances for all.

With this challenging digital transition in mind, it is key to gain as much knowledge as possible of how parental reading habits seem to be of significance for students' reading achievement. Adding to the discussion on equity, Støle, Wagner and Schwippert (2020; Chap. 14) found that parents could play an important role in their children's reading development beyond the contribution of SES. Even after controlling for the number of books at home and parents' level of education, Støle et al. (2020) found that parents' reading enjoyment contributes significantly to children's reading achievement across all four PIRLS cycles in all Nordic countries. Considering the gender gap in reading achievement in the Nordic countries, these findings could shed light on particular intervention programmes aiming to reduce this gap. At the same time, this finding corroborates the importance of parental practices and a wider home learning environment in developing children's literacy (Sénéchal & LeFevre, 2002; Skwarchuk, Sowinski, & LeFevre, 2014) while observing the Nordic setting more closely.

16.6 Encompassing Equity—A Wicked Scientific Problem?

Throughout the chapters, equity has been addressed in several ways and with different perspectives and approaches. As described by Buchholtz, Stuart and Frønes (2020) in Chap. 2, different understandings, definitions and measurement instruments could lead to different conclusions related to educational equity and equality, especially when it comes to educational decision making. Buchholtz et al. (2020) further argued that the increasing diversification of the educational landscape in the Nordic countries increases the individual need for compensatory measures, and policy makers are today faced with the ever more difficult challenge of finding fair distributions in the provision of educational resources under these new conditions (e.g., transnationalisation, multicultural ascriptions) that are not at the expense of specific groups. Finding the right balance between the demands of equality (sameness in treatment) and the demands of equity (educational justice) does not only mean guaranteeing formal rights (e.g., in minority language education) but instead taking the requirements of marginalised groups seriously. Educational systems need to ensure that all individuals have the capability to realise their rights and have the material resources to do so.

Another field of knowledge that needs to be further developed relates to the complex mechanisms behind the factors related to equity and equality. In Chap. 3, Mittal, Nilsen and Björnsson (2020) showed that different operationalisations of socio-economic status (SES) lead to different rankings among the Nordic countries in terms of the importance of SES on achievement. The idea is further explored in the work of Scherer (2020), Chap. 8, who found that the disciplinary climate in the classroom may compensate for educational inequalities because of SES across the Nordic countries, but that the disciplinary climate could not mediate or moderate

these inequalities. This implies that the researchers' theoretical perspectives on equity and equality will mainly determine the evaluation of the specific mechanism. At the same time, the diversity that researchers often investigate further contributes to this complexity. This is illustrated in the work of Radišić and Pettersen (2020) in Chap. 11, who found distinctive student profiles that might be more prone to risk after accounting not merely for students' SES, but also individual strengths and disadvantages in the classroom and school setting. In the context of the equality–inequality paradigm, recognition of these potentially at risk profiles strengthens the possibility of reducing the gap in battling the different aspects of inequality across social groups.

16.7 Possible Conclusions About the Nordic Model

This book has not been a quest for evidence of the Nordic model, but rather an empirically based suggestion of the status of the Nordic model and descriptive snapshots of how it is enacted in practice. Seen from the outside, a number of results from large-scale assessments may seem to have testified to a large Nordic tie—with strong similarities between the countries. From PIRLS and PISA, we know that there is a relationship between SES and achievement although in many of the Nordic countries, this relationship is weaker than for most other countries (OECD, 2019). However, there is reason to repeat that there has always been a large variation between the countries' performance and characteristics. One approach to see across this natural variation is to compare trends over time—do countries vary at the same 'pace', or is there any variation? Several chapters have depicted results concerning the trend development, and these can also be seen as determining the status of the Nordic model over time.

In Chap. 12, Frønes et al. (2020) compared subgroup reading literacy trends over time in Denmark, Sweden and Norway, finding that there is no trace of a Nordic unification in the period 2000–2018. The trend is rather the opposite. In Chap. 14, Støle et al. (2020) found that the relationship between parents' reading habits and attitudes on children's reading achievement are fairly stable across countries and time, suggesting that societal family structures are not more or less compensated for over the period 2001–2016.

When it comes to studies that can be said to take the temperature of the contemporary educational systems in the late 2010s, several chapters have indicated that there are similarities that might be attributed more to the system level than to shared cultural communalities. On the school and teacher levels, there are some unifying patterns. In Chap. 4, Björnsson (2020) found that the attitude towards a multicultural classroom is quite similar among the teachers in the Nordic countries. In Chap. 5, Yang Hansen et al. (2020) found evidence in support of student–teacher relations or self-efficacy regarding the importance of teacher job satisfaction for all Nordic countries. In Chap. 6, Rohatgi et al. (2020) discussed how the lack of variation

between schools in teachers' access, use and attitude towards ICT is an indicator of digital equality at the institutional level.

At the same time, there is work pointing in another direction, doubting whether we can still talk about a joint Nordic model regarding policies, school choice and school competition (Klette, 2018) and that the differences in these areas—starting in the early 2000s—threaten the Nordic model (Lundahl, 2016). Lundahl (2016, p. 9) concluded that it is highly doubtful whether one can still speak of a Nordic model of education when considering the development in Sweden from the perspective of extensive marketisation and privatisation practices. Consistent with this, some chapters in this volume also have pointed to differences between the countries, arguing against a strengthening of the Nordic model. In Chap. 2, the country policy review by Buchholtz et al. (2020) regarding minority language students highlighted that the Swedish school system has a distinct different political approach than the other countries (based on Blossing & Söderström, 2014; Gustafson & Yang Hansen, 2017). In Chap. 3, Mittal et al. (2020) noted that Sweden has a different profile than the other countries. In Chap. 5, Yang Hansen et al. (2020) found similar results in the data from the latest TALIS cycle. Finally, in Chap. 12, Frønes et al. (2020) also found support for a clustering trend of reading literacy development in Norway and Denmark on one side and Sweden on the other. While providing evidence both in favour and against the existence of the common Nordic model may seem contradictory and, to an extent, only 'mudding the waters', such results can also indicate that the Nordic countries are more equipped to maintain the common trends in some areas compared with others. Although common cultural attitudes and beliefs are generally relatively stable over time, educational policy and economic relationships can change rapidly, for example, in relation to performance data. In addition, such results may also indicate that nowadays, maintaining the principles embedded in the Nordic model is grounded on different demands than before.

16.8 Future Prospects for Equity, Equality and Diversity

This volume has shown that even if ILSAs offer a rich pool of data that can be used to examine the aspects of equity, equality and diversity across educational systems and time, at the same time, these assessments offer opportunities to observe particular nuances, allowing us to detect students' differences (and similarities) beyond macro-categories. Such fine-grain analyses (e.g., Chaps. 8 and 11) can foster a deeper understanding of the particular relationships within the equity–equality paradigm, allowing us to rediscover some old patterns in a new light.

Examining both the advantages and limitations of that ILSA data may offer, several impending research strands can be identified. Although some focus on improvements in the measures and theoretical foundations of these studies, others concern enrichment in the use of data from large-scale assessment studies and how

these can be used in combination with other data sets and studies to investigate research questions that cannot be resolved with data from a single study only.

Maybe, we state the obvious when we stress that as in all other studies, there is a need for construct development in the ILSAs, especially for more fine-grained measures. Because most large-scale assessments are developed for international and cross-country comparisons, an objection could be made that the measures tend to be too coarse-grained and decontextualised to capture the differences between groups of students when there is relatively small variations in the student population. Stressing again that the relatively egalitarian Nordic societies pose challenges for measuring SES and with the ongoing developments and digitalisation of everyday life, there is an acute need for research to improve the measure to e.g. replace measures as number of books at homes. To some extent, this means integrating measurement differences that stem from cultural, linguistic or other differences in a research design where interesting local differences are appreciated and pursued (Rutkowski & Rutkowski, 2018). This development on research design, methods, assessment instruments and constructs may lead to more fine-grained measures that provide locally relevant information and results that point in clear directions.

Our last point centres on the relevance of ILSA research. There is a need for the research to be situated in a distinct theoretical field—not only ILSA reporting—to be relevant for both researchers and practitioners and to address research questions noted as important in the theoretical field. In the same way, all educational research should strive to integrate didactic considerations in their own empirical analyses as a guiding principle when interpreting the results and to ensure that the studies are relevant for practitioners and policy makers.

Another main recommendation from this volume is related to the use of data from ILSAs. In Chap. 2, Buchholtz et al. calls for more creative use of ILSA data in research, as a unique source of information encompassing not only student achievement and attitudes, but also including teachers, schools and parents. Further more upcoming trend in using ILSAs data through the lense of person-centred approach, like in Chap. 11, contributes diversity in the use of data within large assessment studies. Moreover, there lies great potential in combining data from different studies more systematically. Strietholt and Scherer (2018) argued that unlike most other datasets in educational research, ILSA data may be combined across studies, cycles and grade levels in numerous ways. These data can also be combined with data from other national and international sources. Combining data from different ILSA projects, as well as combining ILSA data with official statistics and register data, could allow for powerful approaches to investigate research questions that cannot be addressed with the data from a single study (Strietholt & Scherer, 2018). The strength of such a combined approach lies in the possibilities for the cross-validation of findings or a contextual specification and consolidation of research results. This includes, for example, when the results of international comparisons are replicated and reviewed on the national level or when the corresponding findings on the national level are analysed for different temporal cohorts (e.g., different cohorts of students), thus investigating trends. In this volume, we see examples of combining datasets in several chapters. In Chap. 5, Yang Hansen et al. (2020) investigated the

connection between different aspects of teacher quality and job satisfaction using data from two consecutive TALIS cycles: 2013 and 2018. Their findings suggest that the similarities between the Nordic countries found in the 2013 data did not hold true in the 2018 datasets, showcasing diverged country-specific patterns and the possible dissolving of the Nordic model. Furthermore, in Chap. 12, Frønes et al. investigated the reading achievements of students in Denmark, Norway and Sweden over time. To generate trend findings for different groups of students, they used the PISA surveys in reading from 2000, 2009 and 2018. Overall, the trend findings gave the impression that equity related to language background has not improved in any of the three countries.

Even if clear advances can be seen in the combination of different studies and the acquisition of complementary research findings, this is also associated with both specific theoretical and methodological challenges. On the one hand, different large-scale studies use different theoretical frameworks, some of which have been developed and specified over many years (e.g., Stacey & Turner, 2014). As a result, data from studies with different study designs, such as TIMSS and PISA, should only be compared with caution, even if both studies measure mathematics achievements (Wu, 2009). Not only are students of different age groups the target, but also conceptual differences exist: although the data from TIMSS are more curriculum based, PISA tends to test the application of mathematics for solving real-life problems. Another challenge is that empirical data are only comparable to a limited extent over time because statistical indices are collected at different times using different variables (see Chap. 3 and Broer, Bai, & Fonseca, 2019). In addition, there is also the problem of linking existing data from studies and administrative data (e.g. general statistics) with each other because specific methodological and ethical challenges arise, for example, in dealing with personal data, missing values or incorrect linking (including data preparation and deterministic and probabilistic linkage methods; see Harron et al., 2017). However, to reap the benefits of merging data in future research, educational science can learn from health sciences (Bradley, Penberthy, Devers, & Holden, 2010), which are already more advanced in this process, although there are specific differences due to the dynamics of education, for example in the usability of data over a longer period. The potential of ILSAs seems far from fulfilled. Still, the growth of these assessments has been possible due to major advances in technology, measurement theory and statistical modelling the last few decades. Hopefully, additional advances in large-scale assessments, and the methodologies (and theories) on which these are based, in combination with other methods and approaches, can help us provide further insights into the complex nature of concepts such as equity, equality and diversity and the Nordic model.

16.9 Joint Ventures for ‘The Hardest Science of All’—A Reply to the Commentary by Sahlström

The author of the commentary Chap. 15 belongs to an epistemological paradigm that is different from the one applied by most of the authors in this volume. Although the authors of this book are largely familiar with the work of ILSAs and apply methods within the quantitative empirical domain (although many of the authors are originally qualitative researchers), as editors, we have deliberately invited a commentator as a critical friend who comes from the field of qualitative research in education and who holds expertise in the area of research on the quality of teaching. This means that the author of the commentary is more interested in observing current events in the teaching–learning process than in less tangible statistical correlations of inputs and outputs. In terms of methodology, qualitative research on teaching tends to rely on small case studies to understand the inner workings of the educational system. Accordingly, the basic message of the commentary is the criticism that descriptive input–output models, which are primarily chosen to identify causal relationships and that are supported by the data ILSA provide, can only provide a reduced view of the findings on the Nordic model of education and that the choice of methods in this volume (and in this field of research) must be critically assessed.

As members of the same criticised field of research, we editors were challenged by the commentary because the idea that the research approach chosen by many of the authors represented in the book—with its corresponding sophisticated scientific methods of analysis—would not be sufficient was in fact only explicitly developed in this form in the commentary chapter. Nevertheless, we have taken the commentary as an occasion for methodological reflection and, therefore, would like to put its inclusion in the book into perspective with some further considerations that we outline below.

In his commentary, Sahlström advocated for methodological approaches to research that examine the inner system of the Nordic model of education based on a deeper ‘understanding’, especially when it comes to equity and equality. He also cited examples of factors that are less well considered in the book and that can be regarded as influencing factors in the creation of equality of opportunity, such as student activities in class or using digital tools for increased student participation. To a certain extent, Sahlström contrasted the research represented in the book with research stemming from a different empirical standpoint: this and similar work is usually research based on classroom observations and that is mostly qualitative in nature. The results from these observations are undoubtedly an important source of knowledge in the investigation of educational justice in the classroom and, to a greater extent, in the Nordic countries. Thus, we agree with the commentary and must admit that this perspective is almost not represented in the book.

At the same time, one must remember that quantitative and qualitative approaches are opposed to each other, and the strengths and weaknesses of both approaches are well-known (Johnson & Onwuegbuzie, 2004). Precisely because of this, they also

complement each other. Accordingly, Sahlström's criticism of the lack of an answer to the question of a Nordic model must also be classified in this respect.

However, the argument on the 'opposing natures' can also lead us to the insight that the two research perspectives have different expectations of what a Nordic model might be. Quantitative empirical researchers would define a 'model' of education as shared patterns in the data when comparing countries. This is less a weakness in contextual interpretation, as how Sahlström bemoaned, and is instead a more epistemological stance. As Gustafsson (2008, p. 15) pointed out, ILSAs on student achievement have a somewhat deceptive appearance; although they involve students in tasks similar to their everyday schoolwork, the primary purpose is not to provide knowledge about everyday classroom activities but to make generalised descriptions of achievement outcomes at the school system level. So when it comes to identifying a pattern or a 'model', it depends on the interpretation of how big the differences or similarities between countries are as to either call it a Nordic model or not. Therefore, the main focus here is more on describing the available data and identifying empirically validated findings that can serve as a starting point for an interpretation in terms of a common Nordic model. Correspondingly, most chapters in this volume question whether a unifying Nordic model exists.

A qualitative educational researcher will most likely have other criteria to identify some differences and similarities as a 'model' (e.g., shared beliefs and measures based on policy analyses). Both perspectives have advantages and weaknesses (Johnson & Onwuegbuzie, 2004), but they might come to different opinions whether a unifying model exists. Therefore, criticising a research strand to approach the problem from their respective epistemological base has its justification but needs to be interpreted.

However, what the commentary does not develop sufficiently from this starting point is a perspective in which both research approaches can benefit from each other because both are justified in terms of researching equity and equality. Especially when it comes to the complexity of the problems in education science described by Berliner (2002), quantitative approaches would profit from a complementary deepening through qualitative studies that can understand and classify the findings. Thus, researchers may start with quantitative analyses to generate research questions for qualitative studies. Conversely, qualitative studies depend on scientifically substantiating empirical findings by investigating the found phenomena based on large samples. This often involves the formulation of and compliance with scientific quality criteria. The idea behind mixed methods studies is that the strengths and weaknesses of the respective research approaches or elements can be combined or compensated for. Since the 1990s, the mixed methods movement has increasingly set the goal of overcoming trench warfare between purist representatives of the qualitative and quantitative paradigms (Johnson & Onwuegbuzie, 2004), positioning itself as a unifying 'third paradigm' between the two.

Based on the findings of this book, we explicitly advocate for a combination of quantitative and qualitative studies to do scientific justice to the complexity of the question of educational justice and deepen the findings in further research. Here, we also see potential for further empirical work with ILSA (see also Van

Hemert, 2011; Torney-Purta & Amadeo, 2013). The potential for merging insights from ILSA studies with experimental or confirmatory mixed methods studies is far from fulfilled, and several chapters of this book have pointed out that both student outcomes and background variables need to be contextualised through new explanatory studies.

16.10 Concluding Remark

As all chapters in this volume can be defined as secondary data analyses that, according to Hopfenbeck et al. (2018, p. 347), use data as a ‘foundation from which to build additional levels of newly constructed knowledge’. The fact that the results from such analyses have the potential as points of departure for other studies is a somewhat obvious and unconventional claim. Strietholt and Scherer (2018) pointed out that cross-country analyses of ILSA data have great potential to generate knowledge about issues related to educational policy at the institutional level, as well as about phenomena at lower levels, such as the school, classroom and home levels. However, we rarely see this done systematically and in complex studies considering contextual factors systematically. As we have already claimed this to be a wicked scientific problem, this book is to be considered a small contribution to this important puzzle.

References

- Antikainen, A. (2006). In search of the Nordic model in education. *Scandinavian Journal of Educational Research*, 50(3), 229–243.
- Bergem, O. K., Nilsen, T., Mittal, O., & Ræder, H. G. (2020). Can teachers’ instruction increase low-SES students’ motivation to learn mathematics? In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 252–272). Cham, Switzerland: Springer.
- Berliner, D. (2002). Comment: Education: The hardest science of all. *Educational Researcher*, 31(18), 18–20. <https://doi.org/10.3102/0013189X031008018>
- Björnsson, J. K. (2020). Teaching culturally diverse student groups in the Nordic countries—What can the TALIS 2018 data tell us? In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 75–97). Cham, Switzerland: Springer.
- Blossing, U., Imsen, G., & Moos, L. (2014). Nordic schools in a time of change. In U. Blossing, G. Imsen, & L. Moos (Eds.), *The Nordic education model. A ‘school for all’ encounters neo-liberal policy* (pp. 1–14). Dordrecht, The Netherlands: Springer.
- Blossing, U., & Söderström, M. (2014). A school for every child in Sweden. In U. Blossing, G. Imsen, & L. Moos (Eds.), *The Nordic education model. A ‘school for all’ encounters neo-liberal policy* (pp. 17–34). Dordrecht, The Netherlands: Springer.
- Bradley, C. J., Penberthy, L., Devers, K. J., & Holden, D. J. (2010). Health services research and data linkages: Issues, methods, and directions for the future. *Health Services Research*, 45(5 Pt 2), 1468–1488.

- Broer, M., Bai, Y., & Fonseca, F. (2019). *Socioeconomic inequality and educational outcomes. Evidence from twenty years of TIMSS*. Cham, Switzerland: Springer.
- Buchholtz, N., Stuart, A., & Frønes, T. S. (2020). Equity, equality and diversity—Putting educational justice in the Nordic model to a test. In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 13–41). Cham, Switzerland: Springer.
- Engdal Jensen, R. (2020). Implications of changing the delivery mode on reading tests in Norway—A gender perspective. In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 337–362). Cham, Switzerland: Springer.
- Ercikan, K., Roth, W.-M., & Asil, M. (2015). Cautions about inferences from international assessments: The case of PISA 2009. *Teachers College Record*, 117, 1–28.
- Feuer, M. (2013). Validity issues in international large-scale assessment: Truth and consequences. In M. Chatterji (Ed.), *Validity and test use: An international dialogue on educational assessment, accountability and equity* (pp. 197–215). Bingley, UK: Emerald.
- Frønes, T. S., Rasmussen, M., & Bremholm, J. (2020). Equity and diversity in reading comprehension—A case study of PISA 2000–2018. In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 305–335). Cham, Switzerland: Springer.
- Gustafsson, J.-E. (2008). Effects of international comparative studies on educational quality on the quality of educational research. *European Educational Research Journal*, 7(1), 1–17. <https://doi.org/10.2304/eeerj.2008.7.1.1>
- Gustafsson, J.-E. (2018). International large scale assessments: Current status and ways forward. *Scandinavian Journal of Educational Research*, 62(3), 328–332. <https://doi.org/10.1080/00313831.2018.1443573>
- Gustafsson, J.-E., & Yang Hansen, K. (2017). Changes in the impact of family education on student educational achievement in Sweden 1988–2014. *Scandinavian Journal of Educational Research*, 62(5), 719–736.
- Harron, K., Dibben, C., Boyd, J., Hjern, A., Azimae, M., Barreto, M. L., et al. (2017). Challenges in administrative data linkage for research. *Big Data & Society*, 4(2), 1–12.
- Hopfenbeck, T. N., Lenkeit, J., El Masri, Y., Cantrell, K., Ryan, J., & Baird, J.-A. (2018). Lessons learned from PISA: A systematic review of peer-reviewed articles on the Programme for international student assessment. *Scandinavian Journal of Educational Research*, 62(3), 333–353. <https://doi.org/10.1080/00313831.2016.1258726>
- Hopmann, S. T., Brinek, G., & Retzl, M. (2007). *PISA according to PISA: Does PISA keep what it promises?* Wien, Austria: Lit Verlag.
- Imsen, G., & Volckmar, N. (2014). The Norwegian school for all: Historical emergence and neoliberal confrontation. In U. Blossing, G. Imsen, & L. Moos (Eds.), *The Nordic education model. A 'school for all' encounters neo-liberal policy* (pp. 35–56). New York: Springer.
- Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33(7), 14–26. <https://doi.org/10.3102/20013189X033007014>
- Klette, K. (2018). Individualism and collectivism in Nordic schools. A comparative approach. In N. Witoszek & A. Midttun (Eds.), *Sustainable modernity: The Nordic model and beyond* (pp. 59–79). London: Routledge.
- Leung, F. K. S. (2014). What can and should we learn from international studies of mathematics achievement? *Mathematics Education Research Journal*, 26, 579–605. <https://doi.org/10.1007/s13394-013-0109-0>
- Lundahl, L. (2016). Equality, inclusion and marketisation of Nordic education: Introductory notes. *Research in Comparative and International Education*, 11(1), 3–12.
- Mittal, O., Nilsen, T., & Björnsson, J. K. (2020). Measuring equity across the Nordic education systems—Conceptual and methodological choices as implications for educational policies. In

- T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 43–71). Cham, Switzerland: Springer.
- Mullis, I. V. S., Martin, M. O., Foy, P., & Hooper, M. (2017). *PIRLS 2016 international results in reading*. <http://timssandpirls.bc.edu/pirls2016/international-results/>
- Nasser-Abu Alhija, F. (2007). Large-scale testing: Benefits and pitfalls. *Studies in Educational Evaluation*, 33(1), 50–68.
- Nilsen, T., Scherer, R., Gustafsson, J.-E., Teig, N., & Kaarstein, H. (2020). Teachers' role in enhancing equity—A multilevel structural equation modeling with mediated moderation. In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 173–196). Cham, Switzerland: Springer.
- Nortvedt, G. A., Bratting, K. B., Kovpanets, O., Pettersen, A., & Rohatgi, A. (2020). Improving equity through national-level assessment initiatives. In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 225–248). Cham, Switzerland: Springer.
- OECD. (2018). *Equity in education. Breaking down barriers to social mobility*. Paris: OECD Publishing. <https://doi.org/10.1787/9789264073234-en>
- OECD. (2019). *PISA 2018 results (volume II): Where all students can succeed*. Paris: OECD Publishing. <https://doi.org/10.1787/b5fd1b8f-en>
- Olsen, R. V., & Björnsson, J. K. (2018). Tjue år med internasjonale skoleundersøkelser i Norge: Bakgrunn, læringspunkter og veien videre [Twenty years of international large-scale assessments in Norway: Background, learning points and future prospects]. In J. K. Björnsson & R. V. Olsen (Eds.), *Tjue år med TIMSS og PISA i Norge: Trender og nye analyser* [Twenty years with TIMSS and PISA in Norway. Trends and new findings] (pp. 12–34). Universitetsforlaget.
- Radišić, J., & Pettersen, A. (2020). Resilient and nonresilient students in Sweden and Norway—Investigating the interplay between their self-beliefs and the school environment. In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 273–304). Cham, Switzerland: Springer.
- Robak, S., Sievers, I., & Hauenschild, K. (2013). Einleitung diversity education: Zugänge und Spannungsfelder [Introduction diversity education: Approaches and areas of tension]. In K. Hausenschild, I. Sievers, & S. Robak (Eds.), *Diversity education. Zugänge—Perspektiven—Beispiele* [Diversity education. Approaches—Perspectives—Examples] (pp. 15–35). Frankfurt a.M, Germany: Brandes & Apsel.
- Rohatgi, A., Bundsgaard, J., & Hatlevik, O. E. (2020). Digital inclusion in Norwegian and Danish schools—Analysing variation in teachers' collaboration, attitudes, ICT use and students' ICT literacy. In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 139–172). Cham, Switzerland: Springer.
- Rutkowski, L., & Rutkowski, D. (2018). Improving the comparability and local usefulness of international assessments: A look back and a way forward. *Scandinavian Journal of Educational Research*, 62(3), 354–367. <https://doi.org/10.1080/00313831.2016.1261044>
- Rutkowski, L., von Davier, M., & Rutkowski, D. (2014). *Handbook of international large-scale assessment. Background, technical issues, and methods of data analysis*. Boca Raton: Chapman & Hall/CRC Press.
- Sahlström, F. (2020). The black box of Nordic education held against the light of large-scale international assessment resources—A critical commentary. In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 387–396). Cham, Switzerland: Springer.
- Scherer, R. (2020). The case for good discipline? Evidence on the interplay between disciplinary climate, socioeconomic status, and science achievement from PISA 2015. In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 197–224). Cham, Switzerland: Springer.
- Sénéchal, M., & LeFevre, J.-A. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child Development*, 73(2), 445–460. <https://doi.org/10.1111/1467-8624.00417>

- Skwarchuk, S.-L., Sowinski, C., & LeFevre, J.-A. (2014). Formal and informal home learning activities in relation to children's early numeracy and literacy skills: The development of a home numeracy model. *Journal of Experimental Child Psychology*, 121, 63–84. <https://doi.org/10.1016/j.jecp.2013.11.006>
- Stacey, K., & Turner, R. (2014). The evolution and key concepts of the PISA mathematics frameworks. In K. Stacey & R. Turner (Eds.), *Assessing mathematical literacy. The PISA experience* (pp. 5–33). Cham, Switzerland: Springer.
- Støle, H., Wagner, A. K. H., & Schwippert, K. (2020). The importance of parents' own reading for 10-year-old students' reading achievement in the Nordic countries. In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 363–384). Cham, Switzerland: Springer.
- Strietholt, R., & Scherer, R. (2018). The contribution of international large-scale assessments to educational research: Combining individual and institutional data sources. *Scandinavian Journal of Educational Research*, 62(3), 368–385. <https://doi.org/10.1080/00313831.2016.1258729>
- Telhaug, A. O., Mediås, O. A., & Aasen, P. (2006). The Nordic model of education: Education as part of the political system in the last 50 years. *Scandinavian Journal of Educational Research*, 50(3), 245–283.
- Torney-Purta, J., & Amadeo, J.-A. (2013). International large-scale assessments: Challenges in reporting and potentials for secondary analysis. *Research in Comparative and International Education*, 8(3), 248–258.
- Van Hemert, D. A. (2011). Frameworks for explaining cross-cultural variance: A meta-analytic examination of their usefulness. In F. J. R. van de Vijver, A. Chasiotis, & S. M. Breugelmans (Eds.), *Fundamental questions in cross-cultural psychology* (pp. 312–340). Cambridge, UK: Cambridge University Press.
- Wu, M. (2009). A comparison of PISA and TIMSS 2003 achievement results in mathematics. *Prospects*, 39, 33–46.
- Yang Hansen, K., Radišić, J., Liu, X., & Glassow, L. N. (2020). Exploring diversity in the relationships between teacher quality and job satisfaction in the Nordic countries—Insights from TALIS 2013 and 2018. In T. S. Frønes, A. Pettersen, J. Radišić, & N. Buchholtz (Eds.), *Equity, equality and diversity in the Nordic model of education* (pp. 99–137). Cham, Switzerland: Springer.

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