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# Danish and Finnish PISA results in a comparative, qualitative perspective: How can the stable and distinct differences between the Danish and Finnish PISA results be explained?

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**Abstract** The research project presented in this article was designed to provide a better understanding of the stable and significant differences in the PISA results between two otherwise very similar Nordic welfare states, Denmark and Finland. In the PISA studies, Finnish students repeatedly achieve the highest Nordic (and partly worldwide) scores in e.g. reading, science and math, while Danish students score lower. Even though Denmark has one of the world's most expensive educational systems, the OECD ranks the Finnish school system as the world's best both in terms of quality and equity (OECD 2004). *The basic research question is why these differences continue to persist*. The case study methodology was mainly inspired by Kirsti Klette's classroom research (Klette 2003) which involves both interviews and observations. Thus, the overall design could be labeled *mixed methods* (Johnson and Onwuegbuzie *Educational Researcher*, 33(7): 14-26, 2004). Five regular public schools in each country were sampled for the comparative classroom studies. The basic theoretical approaches follow Hundeide's theory of pedagogical communication and relations (2003) and Csikszentmihalyi's flow-theory (1992). Both this study and statistical studies (Sørensen 2008) show that the difference in the Danish and Finnish PISA results mainly consists in the relatively better score by the lowest scoring 25% of the Finnish pupils compared to the lowest scoring Danish quartile. The results of this study point to a number of possible classroom related reasons why the Finnish school system can produce a better outcome for the lowest scoring quartile of pupils. These reasons are presented and discussed in the article. The study underlines the need to focus more on good classroom management in Denmark—and recommends further international, comparative research in order better to

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understand the huge differences shown in large scale international programmes such as PISA, PIRLS and TIMMS. The study also reveal the need for more knowledge about inclusive classroom practices, the use of teacher assistants and free, healthy school meals for all pupils.

**Keywords** International comparative educational research · Nordic PISA results · Inclusion · Classroom management · Classroom relations · Classroom communication · Flow · Learning · Teacher assistants

## 1 Introduction

This article reflects the results of a 4 year research project involving a primarily qualitative, comparative classroom case study with the aim to provide an understanding of the fairly substantial and stable differences in the Danish and Finnish PISA results (Egelund 2007a). Since the 1990s, where a number of large scale, inter-Nordic educational research projects such as the so-called "Nordlæs"-project showed a clear Finnish lead within e.g. pupil reading skills (Lau et al. 1996), the trend with excellent Finnish results in international, comparative educational research programs has continued (Egelund 2007a, b). Not just in Denmark, but in all the Nordic countries (Denmark, Finland, Iceland, Norway and Sweden) educators have asked themselves why this is so, since the cultures, the educational systems, the economies (GNP per capita) and welfare state set up are quite similar in the five countries (Lie et al. 2003).

In the PISA studies, Finnish pupils continue to achieve the highest Nordic (and global) scores in e.g. reading, science and math, while Danish pupils (and indeed Icelandic, Norwegian and Swedish) score lower (Egelund 2007a, b). Even though Denmark has one of the world's most expensive educational systems and use substantially more resources on its schools than Finland, the OECD ranks the Finnish school system as the world's best in terms of both quality and equity (OECD 2004). *The basic research question is why these differences persist.*

In order to design an adequate project to answer the question, methodological inspiration was drawn from the Norwegian researcher, Kirsti Klette, who has used and developed classroom research methods in several educational research projects, e.g. in the so-called PISA+ project (Klette 1998, 2003). Her method combines pupil and teacher interviews with different types of classroom observations—both structured and participant. Klette's methods can be seen as mainly qualitative with some quantitative elements; overall they may, thus, be labeled *mixed methods* (Johnson and Onwuegbuzie 2004).

The basic theoretical approaches in our study follow Hundeide's theory of good pedagogical communication and relations (Hundeide 2003) and Csikszentmihalyi's flow-theory (1992), which increasingly is being used in classroom studies (Rathunde and Csikszentmihalyi 2005a, b).

Based on these methods, theories and projects a number of variables were derived for the classroom observation and interview guides. Thus, 21 constructs were selected for the general design of the study and integrated into the observation sheets and interview guides. All of the constructs relate to two overall notions in the study,

namely *learning* and *well-being*, and one construct, i.e. *flow*, unites both (Csikszentmihalyi 1992). Among the constructs, 14 refer to pupil actions and experiences, e.g. *pupil attention*, *-autonomy*, *-cooperation*, *-influence*, *-comfort*, *-flow and -motivation*, while seven constructs refer to the actions and experiences of the teacher, e.g. *teacher appreciation* and *-feedback*.

## 2 Danish and Finnish PISA results

It should be noted that a comparison of the Danish and Finnish PISA results from all three rounds of tests 2000, 2003 and 2006 reveals a relatively similar difference in scores in science, reading and math. Figure 1 only illustrates the 2006 data, but the 2000 and 2003 data show a similar pattern. Moreover, in each of the three PISA rounds (2000, 2003 and 2006), the Danish results are close to those of the other three Nordic countries, i.e. Iceland, Norway and Sweden. In all three surveys, the Finnish results stand out as by far the best in the Nordic region (Egelund 2007b).

A similar difference of outstanding Finnish results compared to the four other Nordic countries can also be found in the earlier mentioned inter-Nordic survey "Nordlæs" conducted a decade ago (Lau et al. 1996). It is worth noticing that this remarkable difference occurs between, *in a global perspective*, closely related and almost identical Nordic welfare states (the high level of similarity between the countries concerns, among other things, the basic welfare state model, the GNP per capita, size of population, educational structures, features concerning family life including birth and divorce rates).

It should be noted that both this study and statistical studies conducted by Christen Sørensen at University of Southern Denmark (2008) show that the difference in the Danish and Finnish PISA results mainly consists in relatively better score by the lowest scoring 25% of the Finnish pupils compared to the lowest scoring Danish quartile. This fact raises another question: Why is the Finnish school system seemingly better at preventing *low achievement* and enhance *social mobility*?

## 3 The educational discourses in Denmark and Finland

In spite of the surprising PISA differences between the two (five) mentioned Nordic countries, Denmark and Finland are normally regarded as sharing a number of so-called Nordic values, which, to some extent, are believed to be present in all of the

| **Science:** | **Reading:** | **Math:** |
|---|---|---|
| Finland no. 1 | Korea no. 1 | Taiwan no. 1 |
| Hong Kong no. 2 | Finland no. 2 | Finland no. 2 |
| Denmark no. 24 | Denmark no. 19 | Denmark no. 15 |

**Fig. 1** The global ranking of Denmark and Finland within three central competence areas in the PISA 2006-surveys (Egelund 2007b:14–15)

Nordic countries. One may describe these values as basically child centered—i.e. a general emphasis on child initiated activities at nurseries, kindergarten, pre-school and primary school. Another shared value is that children rarely enter primary school before the age of six or seven. To some extent, childhood is seen as a realm of play, fantasy and creativity while scholastic learning comes second—at least until the first grade. In the Nordic countries, primary schools generally do not push children to engage in high profiled early structured learning programs. Instead, focus is on providing a safe and comfortable environment for learning, creativity and thriving in the classroom and at the school in general.

Child well-being and cross curricular competencies along with traditional scholastic goals are considered equally important. All the Nordic countries operate with a so-called 'class teacher' system in which a class of pupils remains a fixed unit under the primary care of one teacher. The teacher in question functions as class teacher for a period of typically two to three successive years, from first grade (at age six or seven) to second or third grade at minimum. After this period, another class teacher is in charge from third/fourth to fifth/sixth grade etc. (Mejding and Roe 2006). *It is worth noting that none of the Nordic countries stream the pupils during compulsory education; they continue in the same class with the same group of children for* 9 *years*.

In all of the Nordic countries, the class teacher is in charge of the majority of lessons in the pupils' first years at school. This allows the teacher to follow not just the class as a group but also the individual child regarding the scholastic, personal and social development. To vary the teaching methods and to provide better learning opportunities for the pupils, the class teacher will break the uniformity of the normal school day from time to time and organize periods of time with special projects involving storylines, feature days, 'play-to-learn' and hands-on activities. Moreover, group- and pair work are widely used.

Apart from these similarities, are there obvious intra-Nordic nuances to this 'story'? Do the PISA results indicate a different reality?

When the PISA results were published, they triggered very different reactions and had a very different impact in Denmark and Finland, respectively. In Denmark, several types of reactions were expressed; one reaction, mainly rooted in the domain of teacher education and educational research, was to write off PISA as useless, claiming this type of international, comparative, educational research is worthless as a tool for understanding and evaluating teaching, learning and education. This argument was recently bolstered by the international PISA criticism formulated and edited by the Austrian researcher S.T. Hopmann in *Pisa zufolge Pisa—Pisa according to Pisa* (Hopmann et al. 2007). Another type of reaction was an 'unconditional' admiration of the Finnish educational system, which Denmark was urged to copy immediately. A third reaction involved criticism of the Danish educational system demanding change and reform. The latter seems to have had the upper hand in the recent decade as major players on the Danish educational scene—such as leading political parties, three consecutive national governments (Nyrup Rasmussen from 1992–2001, Fogh Rasmussen 2001–2009 and Løkke Rasmussen 2009 to date), the National Organization of Danish Municipalities (KL) and, to a certain extent, the Danish Teachers' Union (DLF)—have agreed to launch different initiatives to improve the evaluation systems in schools and the teacher training at colleges.

The excellent Finnish results made the controversies over PISA less outspoken in Finland. Though the Finnish National Board of Education has pointed to the need for more attention to well-being and creativity in school, some Finnish scholars have claimed that Finnish government and municipalities use the PISA results as an excuse for not initiating necessary educational reforms (Sandén 2007a, b). The Finnish researcher Risto Rinne is critical of the overall effect of the 'PISA concept' and the associated OECD preoccupation with economy and accountability, which he believes have already had the negative effect of lowering the independence of Finland as a sovereign nation and simultaneously increased inequality between rural and urban areas in the country (Rinne 2000; Rinne et al. 2006).

## 4 Related and contemporary classroom studies

In addition to the mentioned inspiration, both methodologically and result wise, from Klette (1998, 2003), this article also studied the classroom research of Kevin Rathunde and Mihaly Csikszentmihaly. They have used the notion of flow to examine and measure student engagement, motivation, well being and learning (Rathunde and Csikszentmihalyi 2005a, b). However, the flow theory, as a methodological tool within educational research, has mainly been applied to middle and high school levels (Rathunde 2003). According to Csikszentmihalyi, flow is a unique and yet quite normal, enjoyable and worth-while psychological state of continual and committed attention (Csikszentmihalyi 1992, 1997). Rathunde describes flow as follows:

> *Flow* is an intrinsically motivated, task-focused state characterized by full concentration, a change in the awareness of time, feelings of clarity and control, a merging of action and awareness and a lack of self-consciousness. The experience is triggered by a good fit between a person's skills in an activity and the challenges afforded by the environment. Flow has been shown to promote learning and development because experiences of total concentration are intrinsically rewarding, and they motivate students to repeat an activity at progressively higher levels of challenge. (Rathunde 2003)

For flow experiences to occur, the pupil must stand a good chance of completing the actual task by paying full attention to it and by using the learner's capacities at the utmost (Csikszentmihalyi and Rathunde 1993). In order to promote flow in schools, clear goals and some sort of feedback are required. A 'flow task' often includes a degree of absorption in the learning process so deep that the learner temporarily forgets the worries, problems and frustrations of everyday life. "Our sense of self disappears when we are involved in such tasks and paradoxically the sense of self emerges as strengthened after the task is completed. Perception of time is altered during flow experiences. Hours can pass in what seems like minutes and minutes can seem like hours" (Andersen 2006). Using flow in educational research became particularly popular in the 1990s after the publication of Csikszentmihalyi's "*Flow, the Psychology of Happiness*" (1992). Flow was increasingly used as a means of measuring and understanding pupils'

and students' well-being, learning, collaboration, motivation, engagement, attention and creativity (Gilman et al. 2008).

In a study from Utah, Rathunde concludes that middle school students who experience a high amount of flow in the classroom, are generally more motivated for learning and for continuing studies and education into high school levels and beyond compared to students with less or no school flow experiences (Rathunde 2003). Another similar and relevant inspirational source for this study is a number of recent Finnish studies, one of which is a research project by Thuneberg (2005): *Self-determination, Motivation and the Psychological Needs at School*. This study shows that Finnish pupils on one hand:

1. generally like to go to school
2. have internalized the school goals
3. have developed useful coping strategies

.....but on the other hand, it also shows that they are mainly externally motivated, which indicate a low level of autonomy (according to Ryan and Deci 2000). Another Finnish study, Harjunen and Tainio (2007), points to the good effect of using humor in the classroom, while Sandén (2007a, b) puts emphasis on the importance of strengthening school leadership.

## 5 Data gathering and analysis

The data consist of structured observations (quantitative) and diary notes based on participant observations (qualitative). They are supplemented with photos, video recordings and research interviews mainly with pupils and teachers from the two countries (qualitative). The interviews were semi-structured and based on the methodology of Kvale (1997). A special flow-observation sheet was developed for the participant observation. It constitutes the methodological novelty of this research project. In each country, five primary schools were sampled as 'normal schools', and at each of these schools, one or two regular classes and their class teacher were sampled for the actual studies. During the periods of classroom research, equal attention was paid to the perspectives of pupils and teachers, but less to school principals. The children involved were 7 to 13 years old and attended primary school levels, i.e. from first to sixth grade. The methods of analysis were mainly inspired by Kvale (1997) and Schultz-Jørgensen (1989)—one central analytic tool being *condensation of meaning* (Kvale 1997) *using theoretical approaches as mounting frames for interpretation* (Launsø and Rieper 2005).

An example of the analysis of the collected data deals with observations of a group of third graders (8 to 9 years old) at one of the sampled Danish primary schools. The group consists of three pupils who, judging from photos, observational notes and interviews (with one of the three children and the involved class teacher), enjoyed reading in the 'reading corner' in their classroom. They were all deeply absorbed in their work, which was to study a cross-curricular theme involving the subjects Danish, art and music.

Based on these observations, it can be concluded that the three pupils were in flow. They appeared to be carried away by the reading and the themes as well as the

applied teaching method of 'project work'. Thus, these observations were recorded under the entry "flow" (construct number 10) on the observation sheet. In textbox this particular observation is reported in row 10, column 8. Similarly, an entry regarding individual pupil flow is recorded when analyzing the pupil interview transcript; this can also be seen in textbox, row 10, column 2. This example shows that sessions with theme or project work, which are characterized by a high degree of interest, influence and self-direction on the part of the pupils combined with flexible work and study methods, are very likely to produce flow experiences for the involved pupils. Many of the Danish pupils report 'school-flow' in connection with periods dominated by this type of 'project or theme work teaching'.

However, the analysis of the data from this and similar learning situations also shows that for some children such complex learning situations can produce negative experiences, such as being bored, feeling over-challenged or socially uncomfortable. Generally, the data from the Danish schools were more varied than the data from the Finnish schools, which showed a higher degree of consistency. The data leading to this conclusion can be seen in Fig. 2.

An example from one of the Finnish schools is presented below, based on extract from the field diary:

> It's an early summer morning in a large Finnish provincial city. In the schoolyard of the old downtown city school the children are lining up—it's 8 o'clock and the lessons are about to begin.

| | PUPIL INTERVIEWS | | STRUCTURED OBS | | TEACHER INTERVIEWS | | CLASSROOM OBS | |
|---|---|---|---|---|---|---|---|---|
| CONSTRUCT | FINLAND | DANMARK | FINLAND | DANMARK | FINLAND | DANMARK | FINLAND | DANMARK |
| 1.Engagement | XXXX | XXX | XXXX | XXX | XXXXXX | XXX | XX | XXXX |
| 2.Comfort | XXXX | X | XXXX | X | XXXXXX | X | XXXX | XXX |
| 3.Motivation | XXXX | XXXX | XXXX | XXXX | XXXXXX | XXXXX | XX | XXX |
| 4.Cooperation | XXXX | XXX | X | XXX | XXXXXX | XXX | XX | XXXX |
| 5.Teacher appreciation | XXX | X | XXXX | X | XXXXXX | XX | XXX | XX |
| 6.Politeness | XXXX | XX | XXXX | XX | XXXXXX | XX | XXXX | XXX |
| 7.Autonomy | | XXX | | XXX | | XXXX | | XXXX |
| 8.Influence | | XX | | XXX | | XX | | XXX |
| 9.Good relations | XXXX | XXXX | XXXX | XXXX | XXXXXX | XXXXX | XXX | XXXX |
| 10.FLOW | XXXX | XXXX | XXXX | XX | XXXX | XXXX | XX | XX |
| 11.Attention | XXX | XXX | XXXX | XXX | XXXXXX | XXXX | XXXX | XXXX |
| 12.Focus | X | XXX | XXXX | XXX | XXXXXX | XXXXX | XXXX | XXXX |
| 13.Goal orientation | XXXX | XX | XX | XX | XXXXXX | XXXXX | XX | XXX |
| 14.Goal achievement | XXXX | X | XX | X | XXXXXX | XXXXX | XXXX | XX |
| 15.Readiness | XXX | X | XX | X | | | XXXX | XX |
| 16.Feed back | XXX | X | XXX | X | XXXXXX | V | XXXX | XXX |
| 17.Classroom management | XXX | XX | XXXX | X | XXXXXX | XX | XXXX | XXX |
| 18.Teaching methods | | XX | | XX | XXXXXX | X | XXXX | XX |
| 19.Differentiation | | | | | | X | XXXX | XX |
| 20.Home work | XXXX | X | | | XXXXXX | | XXXX | X |
| 21.Mediation | XX | X | X | | | | XXXX | X |
| Column number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

**Fig. 2** Overview of data and results. Construct 1–5 (apart from number 5) refer to the pupils: pupil engagement, comfort, motivation, cooperation, etc. Constructs 16–21 refer to the action of the teacher: teacher-feedback, -teaching methods, -classroom management, -differentiation, etc

**Explanation**

Column 1-2: Pupil interviews (four Finnish and four Danish pupil interview)
Column 3-4: Structured individual pupil observations (four Finnish and four Danish pupil obs.)
Column 5-6: Teacher interviews (six Finnish and five Danish teacher interviews)
Column 7-8: Participant observations of entire classes (four Finnish and four Danish classes)

The results of the participant observations, based on diary notes, using both the 21 constructs and the "emerging" phenomena, can only be shown in parts in this figure. These data and their interpretation will be dealt with later.

Record of an entry (X) means a positive registration of the phenomena (construct) during the analysis of the gathered data. The lack of entry signifies either no data for recording entries or that the phenomena is registered in a "negative" way. To give an example, there are no entries concerning "Finnish pupil interviews", column 1, row 8, "pupil influence" because no data concern this construct in the transcripts.

In spite of Finland's Nordic roots and values, this little episode may be a sign of a special Finnish educational, cultural niche within the Nordic educational system. This observation was unique, compared to the data from the five Danish schools, where pupils were never observed to stand in line. Contrary to this, the phenomena was observed at all the involved Finnish schools during the period of the study. A close examination of all the data from the Finnish schools reveals a number of other details that are particular to Finland; details that could be said to form an overall and well embedded educational culture of good *classroom management* (Reider 1998, Reider et al. 2001). However, some educators do not agree with this interpretation of the Finnish school culture. Rather, the practice of lining up the children in the school yard and/or hallways and other similar activities are interpreted as a tendency in the Finnish educational system to be old-fashioned and conservative and to hold on to very traditional and, in some contexts, out-dated disciplinary methods (Thejsen 2005). However, the following extract from the diary illustrates that this is not necessarily the case. Instead, the episode suggests something entirely different than a déjà vu of old "boot camp" times:

> Now, the school principal enters the scene. She places herself right in front of the entrance, letting the children enter school in one long row—*while she says good morning to each and every pupil, having eye contact with them all and remembering everyone's name!*

This is obviously not merely an instrument of discipline and control but a means of creating a sense of togetherness, comfort and confidence (Hundeide 2003). Moreover, it can also be seen as a sign of well-functioning *classroom management* (Reider 1998, 2001). It should be noticed that such elements are important features of an optimal learning environment that is able to enhance pupil flow experiences and inclusion (Rathunde and Csikszentmihalyi 2005a, b).

Following the above presentation of the data gathering and analysis, a closer look at a great part of the data and results is presented in Fig. 2.

## 6 Results

As seen in textbox, the analysis of the study data shows, among other things, *a higher degree of pupil autonomy and influence in the Danish classrooms, but a higher degree of teacher appreciation and constructive feedback in the Finnish data*. Moreover, the degree of pupil classroom comfort and the amount of homework were higher in the Finnish than the Danish data. It is possible to produce a number of similar conclusions by listing the comparative results of the study, and in doing so we find part of the answer to the question concerning the stable and permanent differences in the Danish/Finnish PISA results. Yet, to fully answer the research question of the study, we must include three other aspects in the analysis:

1. The use of the flow construct
2. Emerging phenomena, using a more grounded theory approach
3. Further examination of the hypothesis that the Finnish lead is mainly due to better inclusion of pupils with a low SES (Social Economic Status)

### 6.1 Flow in the Danish and Finnish classrooms

The presence and degree of flow measured in the Danish and Finnish classrooms are somehow similar in the study, but the daily classroom situations in which flow occurs are very different in the two countries. The Danish pupils mainly report flow in connection with periods of group, pair or theme work, with higher degree of pupil influence, while the Finnish pupils tend to refer to periods of individual concentration and engagement with normal assignments in the classroom as generating flow experiences. Furthermore, the typical Danish lesson model, observed as almost universal at the five studied Danish schools, consists of 90-minute modules with long periods of group or pair work, often taking place in separate study rooms, hallways, lobbies and libraries, often leaving just a few pupils in the classroom. This model seems to facilitate flow for many pupils; it is documented both by teacher and pupil interviews (textbox, row 10, columns 2 and 4) and by the classroom observations, even though the latter shows less evidence for flow (textbox, row 10, columns 6 and 8) than the interviews. The data also shows that if the teacher is capable of providing feedback to most pupils during the periods of group or pair work, the degree and amount of pupil flow increases. However, both interviews and observations indicate that, especially if the teacher do not have time for all groups, the long periods of independent group or pair work can produce anxiety, drudgery, conflicts or boredom for some of the Danish pupils. Thus, as mentioned directly by some of the Danish pupils in the interview, one hypothesis may be that such negative effects mainly occur for and hurt pupils with a low SES, i.e. working class children.

This hypothesis could be further elaborated by using Bruner's understanding of *The Culture of Education*. (1996). The predominant Danish use of the 90-minute group work model could be interpreted as a somewhat unfortunate attempt to apply a social constructivist pedagogy, in which teaching lessons are conceived as a *sub-community of mutual learners* in contrast to the "traditional Western pedagogical

tradition of the omniscient teacher, who explicitly tells or shows unknowing learners something they presumably know nothing about" (Bruner 1996:20–21). The mutual learner model might be seen as failing at some Danish schools because one important aspect is missing: according to Bruner, the sub-community/social constructivist approach still has *the teacher playing a very important role as a leader, orchestrating the learning processes:*

> Contrary to traditional critics [to social constructivist pedagogy] such [school] sub communities do not reduce the teacher's role nor his or her authority. Rather, the teacher takes on the additional function of encouraging others to share it (Bruner 1996:22).

In the interviews many Danish pupils mention that they prefer the 90-minute model to the traditional 45-minute classroom lesson, provided the teacher is capable of communicating with all groups/pairs during the lesson and giving feedback to all or most of the pupils during the 60 min of independent work. Otherwise, the pupils' overall experience easily becomes negative. This is explicitly stated by Danish pupils with a low SES and an immigrant background. They mention many incidents of chaos, indifference, boredom and conflict during group/pair work because the teacher appears absent to them for longer periods of time.

In Finland, observations as well as interviews confirm a higher level of successful teacher classroom management than the equivalent Danish data (textbox, row 17, all columns 1-2-3-4-5-6-7). The Finnish classroom management style is characteristic of more varied teaching and learning methods, it typically takes place in the actual classroom with the teacher in clear visual control, has longer periods of joint class attention followed by teacher appreciation and feedback to individuals and/or groups which is combined with clear goals and communication in the classroom. On the basis of the data material, this type of classroom management style seems to produce many flow experiences for Finnish pupils. Yet, interviews with the Finnish pupil also show that this prevailing teaching style can produce boredom.

### 6.2 A grounded theory approach: emerging phenomena

When applying a grounded theory approach, and thereby excluding the mentioned premeditated theories and constructs from the analysis, the data show other emerging phenomena, which mainly favor Finnish primary education, phenomena that also point to possible explanations of why the Finnish school is more successful at supporting low achievers (Sørensen 2008). One example of such an emerging phenomenon is teacher education. Teacher education was not a prearranged theme and therefore not integrated into the interviews and observation guides as the previously mentioned constructs.

In this case, the interviewed Danish and Finnish teachers brought up the theme of teacher education themselves. The Finnish teachers generally pointed, in positive ways, to the professional importance of their basic education, while the Danish teachers tended to refer to their basic teacher training years as an important period of personal growth and maturing. However, both the Finnish and Danish teachers mentioned the need for reform of the teacher education programs in the two Nordic countries. Moreover, they stressed the necessity of more focus on learning how to handle '21st century kids'.

Finnish teachers at both primary and secondary levels hold university educations. The primary school teachers undertake a 5-year Master's degree in education. Denmark, however, has a 'lower-profile' system for teacher training involving a 4-year scheme organized at special teacher, nurse and social worker training colleges ("professionshøjskoler") outside academia. In Finland, the university based Master of education (i.e. basic teacher training) is very popular. Indeed, for many years it has been one of the most favored academic careers (Simula 2005) wherefore high enrollment standards are required. Thus, in August 2008 only one out of ten applicants was enrolled at the Master of Education scheme at the University of Helsinki (www.helsinki.fi).

In Denmark, the situation is near to the opposite; it is not popular to become a teacher, the teacher training colleges usually have several vacant study positions, and enrollment qualifications are easily met.

The remaining emerging phenomena, which also favor Finnish primary education, all relate to the notion of *inclusion*. Focus is on dealing with the pedagogical ability to ensure learning and progressive development for all pupils in the class, which indirectly offers answers to the research question.

### 6.3 Preventing low achievement

One important conclusion of the study, confirmed by statistical studies (Sørensen 2008) is that the difference in the Danish and Finnish PISA results is mainly found in the relatively better score of the lowest scoring 25% of the Finnish pupils compared to the lowest scoring Danish quartile. To some extent, pupils with a low SES are comparable to the so-called low achievers, and analysis of the observation and interview data show that such Finnish pupils are much more engaged in learning activities than the Danish ones. Moreover, they are to a higher degree, doing what they are expected to do than the equivalent Danish pupils, who would, at times, only gossip, check their mobile phone or even disturb or bully other pupils during the mentioned long self-directed periods. Thus, it could be concluded that the Finnish schools are better at including pupils with a low SES in the school culture and better at communicating the values of school and the message that "school matters" to these children than the Danish schools (in the study).

One emerging feature concerning this aspect of *inclusion* in the Finnish school is the use of teacher assistants.[1] A teacher assistant spends all the work hours at the school assisting the teacher in practical tasks like downloading new software, starting AV equipment in the classroom and handling conflicts between pupils. They also assist by supporting children with special needs in the classroom or outside the classroom in e.g. the schoolyard or nearby playing fields. They assist at projects, physical training or experiments. For shorter periods of time, the teacher assistants can also do substitute teaching and work in the school homework cafés in the afternoons. Thus, many of the assistants acquire an intimate knowledge of all the types of activities that take place at school. The assistants can follow the troubled or

[1] Inspired by the Finnish experiences, some Danish municipalities, e.g. Skive and Nyborg, introduced teacher assistants at the local primary and comprehensive schools as an experiment in the autumn of 2009.

marginalized pupils in their years in school, which allow them to obtain a close relationship with and a thorough knowledge of these children. To the children, this system seems to provide a much needed confidence, comfort and structure in addition to the support in the actual learning activities. Another emerging feature is the concern of the Finnish education system with the physical health of the pupils.

The following extract from a typical timetable from one of the Finnish primary school classes in the study illustrates this[2]:

| |
|---|
| 08.15–09.00 Finnish followed by a 15 min outdoor break |
| 09.15–10.30 Physical training followed by a 15 min outdoor break |
| 10.45–11.30 Art—drawing/painting |
| 11.30–12.00 Lunch break with free meals and beverages for all |
| 12.00–12.45 Art—textiles followed by a 15 min outdoor break |
| 13.00–13.30 Math |

At least two features connected to this timetable are striking in comparison to a typical timetable from the Danish studied schools. One is the number of breaks (with physical activity). The other is the free meals. At the Finnish schools, each 45-minute lesson is followed by a 15-minute compulsory outdoor break. I noticed that in these breaks, the Finnish children, often encouraged by teachers and teacher assistants, were very active initiating and organizing a variety of traditional outdoor games and plays such as skip rope, ball games, rounders, hide-and-seek etc., all involving a lot of exercise.

Undoubtedly, all this exercise and playing can have a very positive effect on the children's health and, in particular, on their ability to concentrate and pay attention to the actual teaching and thus to learn. In Denmark, there are fewer and often either much shorter or much longer breaks in which the children can decide for themselves if they want to go out or stay inside the classroom. Every day the school canteen serves a free two-course meal including free milk or juice in the lunch break to the Finnish pupils. Breakfast is often available too. Obviously, this is a unique advantage for many children from a poor social background. For instance, families with few resources, such as one-parent households, often have less time and energy to provide decent food for the children.

Even for children from a resourceful social background, the free healthy meals at school are also a great advantage. The analysis of the study data includes few interviews with parents and teachers who have lived and worked in both Denmark and Finland. These interviewees all point to the great advantage of the free meals that they experienced in Finland but not in Denmark. In this context, it should be noted that in both countries it is very common for both parents to hold full-time jobs.

According to the interviewed Danish-Finnish parents, mornings are normally very hectic for working families. Without a school meal system, as in Finland, the parents

[2] Finnish and Danish pupils at both primary and secondary school levels have comparatively fairly short school days, typically ending around 2 p.m. First and second graders in both countries tend to leave school even earlier, but for that level, different institutionalized spare time activities often take over for a couple of hours in both countries.

must organize food for their children for the entire school day while they prepare breakfast and attend to other duties in the early hours of the day. The result, reported by the interviewed resourceful middle-class families too, is little time for preparing a packed lunch and the children were given money to buy food at shops or cafés close to or at the school. The same parents also report knowledge of primary school children in Denmark who use the lunch money for candy, potato chips, cakes, coke and other junk food.

## 7 Overall conclusion

A comprehensive interpretation of the entire study data lead to the following overall conclusion: The Danish educational system focuses on the well-being of the individual pupil, on individual learning styles and it pays attention to the pupil's active participation in planning and evaluating the learning processes. As a contrast, the Finnish teachers pay more attention to the learning outcomes and to the class as a well-functioning unit. Moreover, in Finland the classroom is mainly seen as the teachers' domain, while in the Danish classroom, the language and communication codes are closer or even similar to the intimate spheres of family and peer life. In the Finnish classroom a more distinct 'school' language and code is established from the very first day at school in first grade. Danish teachers seem to view themselves mainly as 'learning consultants' leveling hierarchically with the pupils and sometimes even feeling like underdogs to the parents. Finnish teachers, however, tend to see themselves more as 'classroom managers', leaders and experts on teaching and are generally respected for that role by parents and society as a whole (Simula 2005).

Moreover, the interview data show that the Finnish school system pays more attention to the class as a community of pupils; pupils must function together and take account of each other. Finnish teachers put a great deal of effort into establishing joint attention in the classroom with focus on common goals and activities. At the same time, much energy is devoted weak learners or pupils with learning difficulties. Feedback and evaluation is mainly the responsibility of the teacher, while in Denmark it is more common that pupils evaluate themselves; a challenge which the weaker pupils may not be able to meet. This difference in the teacher role appears to mainly be a benefit for Finnish pupils with a low SES background putting more responsibility on the part of the teacher for the outcome of school.

To illustrate this, here are two central and typical quotations from the interviews with Danish and Finnish teachers. They both reflect the comprehensive interpretation described above and pin point the themes and results of the study. The first quote presents the general Danish view point expressed by a Danish teacher:

> As I see it, really, the most important thing I can do [as a teacher] is to deliver some good introductions, to present the lesson content in an exciting and motivating way [...] to create opportunities for children to be comfortable and have a good time together in the classroom. I can inspire, prepare and produce good themes and materials, but at the end of the day, it's actually the pupils' own responsibility to learn.

In contrast, the typical Finnish view point expressed by a Finnish teacher is as follows:

> I think I'm rather convincing in the classroom [...]. It's easy to read my codes. Pupils know how I am, where my limits are and what I expect from them. For example, they know when we can all laugh together and when it's required that they work quietly and concentrated. It's most important that they can handle such changes. I try to make all pupils laugh at least 5 min every lesson. But just as it is important [for a teacher] to be able to be humoristic, it is essential that you can be serious. I'm aware that it's crucial for me to be able to signal authority and determination when it is required that pupils work hard and dedicated."

## 8 Implications and perspectives

The results and conclusions of the study clearly point to different implications in the two countries, but they also underline the need for further comparative, international studies examining the different hypotheses generated by this study—e.g. the overall hypothesis that the Finnish PISA lead is mainly caused by the inclusive capacity of Finnish schools, here understood as a better ability to support pupils with a low SES.

Since a substantial part of low SES pupils in both Denmark and Finland (as well as in many other European countries) has an immigrant background, relevant aspects for further examination comprise, for instance, the precise inclusive effect of good teaching practice in 'ghetto'-classes.[3] One such question could be: Exactly which classroom practices produce positive motivational and learning outcomes in ghetto-classes in Danish and Finnish schools? When dealing with research questions like that, looking at teacher roles is equally important, and, as mentioned earlier (Section 6.1), Bruner's point about still having *the teacher playing a very important role as a leader, orchestrating the learning processes* (when using a social constructivist pedagogical approach) could also be crucial.

It would also be interesting to examine further the hypotheses that the mentioned inclusive capacity and ability also could be linked to:

1. A constructive effect of using teacher assistants in the classrooms
2. A positive impact of free healthy school meals for all pupils

More and more research indicate a link between good nutrition and the ability to concentrate (Andersen 2007); the Finnish experiences underline the necessity to study this further. One implication for especially the Danish school system would, thus, be to highlight and discuss the importance of children's physical health as an integrated part of school responsibilities and practices.

The hypothesis about a constructive effect of using teacher assistants in classrooms could also be elaborated further by using theory developed by the

[3] Ghetto-classes: in this study ghetto-classes were defined as primary or secondary school classes with at least 30% pupils /students with a non-European immigrant background, i.e. either the pupil herself or her parents were born outside the EU/EØS area.

German educational researcher Thomas Ziehe, who has studied the complexity and difficulty of modern school practices in the light of the huge impact of media and consumer industry on youth culture (Ziehe 2004). From this perspective, Ziehe's writings could indicate that the use of teacher assistants is sensible.

Inspired by the Finnish teacher assistant experiences, a number[4] of Danish municipalities introduced teacher assistants on a trial basis in the autumn of 2009; attention should be paid to the evaluation of these attempts. In what ways are the new teacher assistants used at Danish schools and what is the effect of their work? Further research in the field of the effect and outcomes of using teacher assistants in classrooms is, thus, highly relevant.

Moreover, the lack of pupil autonomy and influence found in Finnish classrooms, contrary to the Danish data, indicates a need for further comparative research—one aspect implied by this theme is the very different implications the study has for the two countries. However, since the researcher and the initiator of this study are Danish, and both the results of this study and those of the PISA program are more favorable for the Finns, the implications and perspectives presented here mainly point to the need for reflection, further studies and change of policies and practices in Denmark.

One such implication has to do with the prevailing Danish 90-minute lesson. During the long periods of self-direction found in the Danish classrooms, often amounting to as much as 60 min per lesson, it appears to be crucial that the teacher monitors and follows the learning process actively so that s/he can assist and give advice whenever problems occur—e.g. when pupils in a group start a fight or just gossip. If the teacher is unable to manage this task, the project and/or group work can be a chaotic and even frightening experience for the children. But if the teacher is capable of supervising the more self-directed activities and communicate with all the groups of pupils, this teaching practice enhances pupil engagement and learning.

The combined project and group work organization of the 90-minute teaching module in the Danish schools provides good opportunities for many children to learn, thrive and be in flow. On the other hand, it also poses a constant and high risk of 'losing' individuals or groups of pupils unlike the better supervised Finnish classrooms. In Finland, the teacher has more visible control of the entire learning environment and practices good classroom management, involving a use of frequent classroom evaluation, clear goals and good communication.

Another problem with the Danish 90-minute project and group work model is that, contrary to what might be expected, it does not allow the teacher to 'relax' or 'step back' in the approximately 60 min the pupils are expected to work independently in groups or pairs. In this period, the teacher role is different from but not less involving or demanding than the standard controlling role. It is demanding because the teacher role changes periodically from the omniscient mediator to the ever-present counselor, which involves a variety of competences ranging from the knowledgeable 'professor' to the group-process consultant and evaluator. One outcome for the Danish teacher education and in-service training could be an increased focus on the teachers' pedagogical repertoires—and on

[4] There are 73 Danish schools involved in the teacher assistant experiments. Further details can be found at the webpage of the Danish Ministry of Education: www.uvm.dk

existing research *documenting the positive effect of varied teaching* (Repstad 2007), which could be seen as even more crucial in a 90-minute session culture. But more research is needed in the areas of *varied teaching methods* and *the length of teaching sessions* as well as in the combination of these two themes.

Finally, the striking difference between the teacher training levels in the two countries result in a more working class/wage earner-like identity among the Danish teachers contrary to the academic, high self-esteem identity of their Finnish colleagues. This difference in identity should be reflected on a political level in Denmark: 2010 seems to be the right time since improving education, especially at primary and secondary levels, was the main topic in the New Year Speech of the new Danish Prime Minister, Lars Løkke Rasmussen, broadcast on the national TV-channel "TV2" 1st January 2010 (www.tv2.dk).

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