Organizational practices of data use: Accountability and sensemaking in 14 Danish elementary schools – valuable, difficult and potential practices of data use

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Publication date: 2018

Document Version
Publisher's PDF, also known as Version of record with the publisher's layout.

Link to publication

Citation for published version (APA):
Organizational practices of data use: Accountability and sensemaking in 14 Danish elementary schools – valuable, difficult and potential practices of data use.
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Abstract
The debates on data use in the professional communities of Denmark are marked by skepticism concerning the validity and usability of national testing for local instructional and developmental purposes (Bundsgaard and Puck 2016). These attitudes mark the controversies associated with the use of standardized testing in Danish schools in comparison with the use of a wider variety of tests and other types of data. We take these as examples of a broader, ongoing debate on accountability policies and practices in Denmark.

The controversy surrounding testing is a sign of the need for research into the challenges posed by different forms of accountability for Danish teachers, leaders and administrators. On all levels of the educational system there is a strong imperative to create change – similar to what has emerged as a global trend over the past decades (Elmore 2003). Change happens at different levels as new quality systems aim to satisfy the political demand for increased accountability while making sense in the local context of each school (Nørgaard et al. 2017).

The paper introduces a theoretical framework for understanding how school leaders at Danish elementary schools engage in practices of accountability, balancing exterior accountability demands with local emphasis on professional usability and organizational sense-making. The theoretical framework is based on American accountability research (Saltrick 2010, Spillane, Reiser, Reimer 2002) combined with a metheological framework based on narrative theory (Bengtson and Andersen 2017).

The analysis is guided by the hypothesis that we can find particular configurations of accountability practice at Danish schools, owing primarily to the ways in which responsibility and agency is enacted in leadership groups. This configuration awards school leaders strategic responsibility (EVA 2017), and has thus become key to the issue of data use since the reform of 2014.


**Educational accountability and its translations in Denmark**

Before we present our analytical and methodological framework we will take a look at accountability policies in Denmark.

Accountability standards at the state and municipal level aim to hold schools and school leaders accountable for academic achievement (Saltrick 2010). However, following Elmore (2003), Saltrick argues that the multiple and particular internal organizational responses to accountability demands are most often omitted in policies of external accountability. The availability of data, in other words, does not in itself lead schools to develop practices that yield greater student achievement. There is something more in play.

The means of helping leaders and teacher to interpret data and respond accordingly is often missing from the external form of accountability. Therefore, Saltrick argues, we need also to focus on what Elmore calls *internal accountability*, meaning the accountability practices where leaders and teachers agree and cohere around expectations for student learning and the means to influence instructional practices in class rooms leading to student learning (ibid.: 9-10).

This leads Saltrick to argue that the development of *internal* accountability practices must precede *external* accountability (XX). In other words, organizational capacity to respond to external accountability demands is crucial if accountability is to have any effect on school policy and student learning. This also reflect the debates going on about building data-literacy capacity and culture of evaluation in schools (Hornskov et al. 2014).

**Traditions of ‘soft’ governance**

In a Scandinavian context this focus on multiple forms of accountability practices is of special interest because of the history of Scandinavian systems of accountability. The accountability agenda of public benchmarking of school performance and sanctioning schools for not performing according to specific standards, is toned down in Scandinavia, particularly in Denmark and Norway. Instead we have what Moos (2009, 2016) labels ‘soft’ forms of governance approaches, in which the aim of government agencies is to make schools self-governed and school leaders strategic leaders (Åkerstrøm and Pors 2016). This taps into traditions of autonomy, egalitarian values, social justice and professional influence on political decisions in Scandinavia.
The consequence is that shifting Danish governments have impelled schools to use external accountability measures and multiple forms of data in order to spur the development of internal accountability practices where leaders and teachers build data-literacy and a culture of data use, to enhance student learning. Instead of sanctioning under-performing schools, the government holds the schools accountable for not reflecting on how to develop their schools using the available data, e.g. not delivering a quality report containing evidence of such reflexion.

Another way of framing this argument is that a learning-centered accountability standards, i.e. standards where enhancement of student learning is at the center of the government approach, travel across the globe. The specific translation, however, of the learning-centered accountability standard varies between countries. The accountability standard, in other words, is translated differently from country to country and from region to region.

Juelskjær and Staunæs (2016) investigate how learning outcome and learning-centered leadership standards are translated by what they call post-psychologies in Denmark, i.e. how the governing of the motivation and desire of students for learning produces new potentializing standards of learning. In much the same vein Olesen at al. (2016) investigate how social capital shape and translate learning proces and outcome based standards in Danish schools, i.e., how making planning and coordinating learning activities more collaborative produces new collaborative learning-centered leadership standards in Danish schools.

As Juelskjær and Staunæs argue, accountability standards have dramatic and performative effects on organizations and subjectivities (ibid). As Bogotch states: ‘With autonomy and accountability, context, culture and situations all matter continuously’ (2014: 319).

When we study leadership practice in the context of the governance traditions in Denmark, it is of particular interest to analyse how Danish school leaders understand and use data, and to analyse what forms of accountability centered leadership practices dominate in participant schools.

The paper focuses on the following issues that arise in the discussion of the research questions: What forms of accountability and what practices of data use do school leaders deem valuable, difficult and has potential at schools in Denmark? We argue that an analysis of the valuable, difficult and potential accountability practices enhances knowledge about “how data use plays out in countries marked by a historically comprehensive school system, egalitarian values and where the teacher profession have enjoyed a relatively great degree of
classroom autonomy as well as influence on political decision-making.” (cf. symposium description).

Research questions

How do Danish school leaders translate external accountability demands?

How do Danish school leaders engage in practices of data use so as to respond to external accountability demands?

What forms of accountability practices dominate in participant schools?

What does this tell us about the relative weight of accountability practices in Danish schools?

What forms of accountability and what practices of data use are deemed valuable, difficult and has potential at schools in Denmark?

Theoretical framework

Accountability, agency and sensemaking

Conceptualization of the organizational forms of accountability

The paper departs from the understanding that agency in leadership teams is conditioned by personal, interior and exterior forms of accountability (Elmore 2005), corresponding to ‘personal, organizational, and external forms of accountability’ (Saltrick 2010: abstract), and that leadership teams enact demands of accountability through sensemaking processes.

Part of the literature focuses on personal or cognitive aspects of accountability, i.e. how the preconceptions and values of individuals enable them to respond to the accountability demand hold upon them. A leader may act under the influence of a particular individual disposition. We can think of this as personal forms of accountability.

In this paper, we focus on interior and exterior forms of accountability as they are documented in the narratives that surface in group interviews with leaders. External forms of accountability include demands made from the surrounding administrative actors and civil society and the measures to implement these demands, e.g., national learning goals and national testing. Interior forms of accountability are ‘organizational responses’ to demands for exterior accountabilities, i.e., “a set of coordinated actions and responses stemming from shared values and professional norms by which an educational organization addresses the
accountabilities to which it is held” (Saltrick: 26), e.g., how schools respond to national goals and national testing.

We will investigate how school leadership teams make organizational sense of external demands of accountability, i.e. “how they interpret, prioritize, influence, and act in the face of multiple and often conflicting demands, and help other educators in their schools develop appropriate responses” (Saltrick: 12).

We understand organizational sensemaking as an interplay of personal and social framings and reframings of symbols and ideas. According to Karl Weick, it is about ‘placing stimuli into some kind of framework’ (1995: 6), or some sort of ‘filter’ which edits reality for us (1995: 57, Saltrick 2010: 15). This idea of ‘placing’ implies authorship; that leaders actively co-construct structures of meaning around data and data use.

Focusing on sensemaking means to consider the importance of the ‘repertoire of existing knowledge and experience’, of ‘what is already known’ (Saltrick 2010: 62) in the organization. This ‘repertoire’ encompasses professional norms and organizational roles that are key to understanding the murky reality of organizational responses to accountability demands. Sensemaking, in other words, is a collective practice of the organization as it engages in organizational responses.

Since the sensemaking processes of leaders draw upon existing repertoires of experience and knowledge, organizational response to external demands consists of two processes: a problematization process and a sensemaking process. As Weick (1995) states: ‘professionals... are coming to recognize that although problem setting is a necessary condition for technical problem solving, it is not itself a technical problem.’ (Weick 1995: 9). Thus, if we look at how a school uses performance data as an example of a technical problem the process of setting the problem takes place at the organizational level and may, first, to larger or lesser degree be original to the specific situation and, secondly, may be more or less independent of the particular implementation process..’Problem setting’ is determined by ‘what is already known’ and done in the practice of the organization (Saltrick 2010). The analysis of the problematization process is thus crucial to the analysis of how leaders make sense of external accountability demands because the problematization process inform us about how external accountability demands are translated into schools.

Thus, we provide an analytical framework of accountability and the forms of sensemaking that may take place in schools working to cope the multiple accountability standards of
contemporary schools. The framework aims to illustrate the value and difficulty of accountability practices.

**Exterior and interior**

*Exterior* forms of accountability include demands made from the surrounding administrative actors or civil society, i.e. demands on quality measures and the implementation of multiple standards. In Denmark, municipalities as well as the state administration define the formal accountability framework of schooling. This includes school legislation (state and municipal) as well as municipal political strategies implemented from the level of the municipal administration. Alongside these formal structures, schools are accountable to informal actors as well. Societal stakeholders such as parents, perform key informal, exterior accountability pressures.

*Interior* forms of accountability are ‘organizational responses’ to demands for multiple and exterior accountabilities. They are organizational in the sense that they rest on the ability of the collective to develop and deliver relevant responses and solutions. ‘Interior’ may denote both issues particular to the organization, such as ways of handling performance data, as well as knowledge shared by the profession, such as didactics or principles of pedagogics that we find across organizations.

If we only analyse how exterior accountability policies affect schools, i.e. how assessment measures and the academic standards measured affect schools, i.e., the type and scope of knowledge students should master (Saltrick 2010: 47), we will not be able to investigate the how – the ways in which learning occur, i.e. how the organisation responds to exterior forms of accountability (ibid.).

**Formal and informal**

While the distinction between interior and exterior forms of accountability is based on the distinction between schools and their surrounding community and policy system, Susan Saltrick encourages us also to think about schools as bureaucracies as well as professional communities. This leads her to consider accountability as both rules and standards that often have a formal character, and as norms or institutional values of conduct (Spillane and Scherer 2011). Rules and standards have a formal character – if they are not law they are often formally sanctioned in the political system or the professional community – while norms and values may have a local, informal character.
Concerns and ambitions regarding accountability occur in many forms in schools in Denmark. Outside schools and professional cultures, accountability is often thought of in normative terms, that is, as things schools ought to do to either justify their status, jobs and benefits and the trust society puts in them, or, in related terms, as forms of systematic, professional action that is largely absent in schools.

Inside schools, therefore, accountability, is felt on the one hand as a pressure to conform to political and societal standards, but at the same time it also surfaces as properties of an internal value system of the professional culture of the school that put pressure upon how to respond to political and societal forms of accountability standards.

The theoretical framework thus needs to enable us to capture the differences between formal and informal forms of accountability in order to understand the pressure applied in different forms of accountability. Note that we cannot assume that formal forms weigh heavier than informal forms of accountability. School teachers as well as leaders may be bound up in locally powerful internal and informal accountabilities, which may be both productive and destructive to the development of the school (Elmore 2005).

We present the accountability matrix in the analysis section below.

**Empirical basis and methods**

The empirical basis of the paper consists of findings from interviews with 14 leadership groups and 14 teacher groups in Danish elementary schools in two municipalities, and two interviews with the municipality management. The interviews were done as part of the ‘Data literacy – learning and wellbeing centered leadership’-project, funded by the A.P. Møller Foundation in a collaboration between Danish School of Education (DPU) and University College Copenhagen (UCC).²

The interviews, conducted in the fall of 2017, aimed to map data practices at schools. The interviews allow us to map two aspects of data use: 1) A range of practical examples of how schools use data, and 2) A look at what school leaders consider model examples from their practice, that is, events that they emphasize as valuable, difficult and has potential.

The duration of the interviews varied from 90 to 120 minutes for both teacher and leader groups. Group size ranged from two to five respondents.

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² DPU: Dorthe Staunæs, professor, PhD. Malou Juelskjær, associate professor, PhD. UCC: Helle Bjerg, External lecturer, PhD. Søren Buhl, Docent, PhD., Henrik Stockfleth Olsen, assistant professor and consultant, Kristian Gylling Olesen, assistant professor, PhD. Klaus Mygind, Senior Advisor.
**Interview methodology and narrative analysis**

We analyze the empirical material using narrative theory and we plot the narratives into the analytical framework. The narrative focus allows us to develop a sense of how leaders understand and use data by analyzing how leaders tell narratives about how they understand and use data. With narrative analysis it is possible to come to understand how people choose, organize and connect events and actors in narratives which are meaningful for the narrator and those who are listening (Bengtson og Andersen 2017).

We analyze data as a means to hold actors accountable, and analyze how the leadership group understand data and narrate the organizational responses of the school to the accountability demands that accompany various forms of data. Thus, data hold leaders accountable and leaders narrate their understanding and response to this demand. This analytical strategy allow us to explore the various forms of data accountabilities and organizational responses in the four leadership groups.

**The paper presentation at NERA 2018**

For the paper presentation we present an analysis of four schools Two of these analyses are presented in this paper.

We have been listening to the audio material from the four interviews with the school leadership teams. Excerpts were analysed for narratives of how groups of leaders understand and use data.

Interview findings are mapped in the accountability matrix (see fig. 1), which is developed in the theory section. Taken as a whole, the practices mapped in the matrix offer an indication of the relative importance of different accountability practices. We would like to discuss international use of the matrix.

**The accountability matrix**

We have sought to capture the tensions between formal/informal and interior/exterior types of accountability in fig. 1. The aim is to enter findings from alle schools and administrative units
in the matrix. We expect to find practices that correspond to all quadrants, though some quadrants may be more intensively inhabited than others. Let us take a closer look at how we expect the distribution to look.

Q1, the interior-formal forms of accountability, is occupied by a mix of data use practices ranging from administrative procedures (HR, for instance) to the mundane organizing of school meetings. Some schools work to map the competencies of individual teachers to form teams and schedule teachings, while other schools focus on designing meetings and conferences for teachers across the formal school organization.

Q2, the exterior-formal is about practices such as the formally sanctioned use of data from national tests and welfare surveys focusing on social aspects on student welfare. Here we also find the municipal quality systems, which have gained a prominent position during recent years, as well as learning goals for subjects at each class level. Also, new digital platforms for communication, knowledge sharing and data mining are being implemented.

Q3, the interior-informal is about the norms of the professional community of the school. We can expect Danish teachers to stress the importance of relational trust, as well as social and organizational justice and how data should make sense to staff and management. In this quadrant, we expect to be able to identify narratives on professional judgment and imagination.

Q4 aims to capture the exterior-informal forms of accountability. These narratives are about the more or less explicit demands and expectation that emerge from civil society and from parents. Here, we expect narratives to vary quite a bit owing to the diverse parent cultures and the different types of attention and expectations that we can expect them to express regarding the schooling of their children.
Fig 1: The accountability matrix

**Preliminary analyses**

This section presents preliminary analyses of two schools.

**School A**

At School A the leaders aim to distinguish between the roles of teachers and leaders in the use of data. Leaders believe that they are not supposed to meddle in the specific details of individual students, but rather to work at the more general level. The specific details of individual students are the task of teachers to focus on. According to the leaders, there is great need to take this task seriously. The school culture is dominated by opinion (da: ‘synsninger’), which makes hearsay and prejudice dominate and data-informed judgement difficult.

To remedy the situation, the leaders believe that teachers should enjoy a high degree of freedom in the choice of methods for teaching and testing. In the words of a leader:

'We shouldn’t have just one model for everybody... We demand of teachers that they make active use of data, but they may do it quite differently, depending on the subject and the group of students.'
For this reason, the leaders can see little point in using the same testing and assessment systems across schools. The nation-wide tests, for instance, are not sufficiently efficient compared to standardized tests chosen for specific purposes and situations. The leaders encourage teachers to choose data to fit their specific challenges. This, the leaders claim, makes perfect sense:

‘We use to say that it has to make sense. There is no point in having a semi-religious dependency on one “box” which everybody must use. It makes no sense. At our school we generate data which is actually put to good use, it just makes more sense...’

The school A interview is dominated by the narrative that teachers are free to find meaningful data, yet not free to opt out. The expectations of leaders are clear: They aim to make teachers accountable for the learning of students, yet emphasize that it should ‘make sense’ to teachers.

Parents and the local community plays an ambivalent role in the narratives at School A. Leaders point to the importance of having parents participate in school activities, yet a high percentage of parents opt out of the formally established communication channel – the parent school platform. Also, leaders believe it is difficult to gauge and map the attitudes of parents. The participation of parents is a challenge.

Fig 2: School A
School B

At School B, the narratives of the group of leaders center mostly on internal-informal forms of accountability. Yet, while sharing School A’s overall analysis that the school lacks systematic professional culture, the remedy suggested by the School B leaders is to focus more on tools than principles. They envision one digital interface to provide overview and the opportunity to share insights on student progress and social well-being.

The driving motivation is to develop a professional culture more prone to finding out when something is ‘really wrong’ in some part of the student population. The leaders refer to a successful initiative to compile data on struggling students in a spreadsheet, designed and maintained by a group of teachers.

The spreadsheet is designed to make the distribution of resources transparent to teachers. It shows, for instance, how many extra teacher hours have been allocated to each class. This, teachers and leaders emphasize, makes it possible to see if, first, resources are in fact distributed to the classes with the most need, and secondly, that resources are distributed fairly. Data on school resources come to form part of a narrative on professional justice, which is important to teachers. This is quite far from the intentions of the formal-external forms of accountability, which do not have justice for teachers as a goal. School B’s spreadsheet is therefore an example of how local systems are designed to satisfy local, professional needs, with only an indirect connection to formal accountabilities.

The leaders at School B are preoccupied by a range of seemingly serious technological and structural issues. Since the school reform and subsequent labour market conflict, teachers have been working without an agreement on their working hours and schedule. This means that the municipal administration spends substantial resources documenting the whereabouts and working hours of teachers. All teachers have been obligated to check in and out of school using a timing-devise installed on the wall. Many teachers consider this a direct sign of mistrust, which accelerate the need to reflect on motivation and issues of professional recognition and justice.

At the same time, municipal technology and software makes it difficult to share and combine data sources. The consequences is that the school, the spreadsheet being an example, runs separate systems: on the one hand there are local systems that work within the given practical and structural constraints, and on the other hand there are municipal, formally sanctioned
systems. Data use practice, therefore, is about juggling systems that do not combine easily – and that, the leaders complain, takes up a lot of time.

**Fig 3: School B**

**Conclusions**

The narratives on informal-internal data use practices indicate that schools use data to further their own, particular goals and strategies. Such strategies may build on traditions of professional autonomy, awarding staff relatively high levels of self-determination in questions of planning and assessing the effects of teaching.

This leaves leaders in a position where their abilities to translate between municipal and local levels, thus linking local practice to formal-external forms of accountability such as municipal quality systems and state mandated tests. This balance, however, seems to shift towards the local in the sense that leaders use more time and effort designing processes and systems at the school as opposed to implementing municipal systems. We see an expression of this idea in the insistence of School A leaders that the use of data should make sense – not to parents or municipal decision-makers, but to teachers.

The external-informal level appears to be somewhat absent from the narratives of the leaders. Leaders talk about the high expectations of groups of parents, data as part of the communication with parents, and the difficulties reaching other groups, but they rarely
formulate ideas of how parents and the local community may become a productive source of education standards.

The preliminary results lead us to look more into the status of national testing in local leadership narratives. The emphasis on local sensemaking means that standardized, national testing may be considered an empty formality that is, at best, irrelevant to local strategies. Test data from external sources, such as student performance data, does seem to play a secondary role. We may explain this by reference to the idea that the ‘repertoire of existing knowledge and experience’ (Saltrick 2010) of the professional community makes it more plausible for leaders to make sense of local data, such as the spreadsheet at School B, or to let teachers choose what data to use and how to become accountable professionals

**Literature:**


Nørgaard, Camilla; Hornskov, Sören; Hansen, Pernille; Bjerg, Helle: Data, der bekræfter eller udforsker. Lederliv, juni 2017.


Appendix A

The narrative interview guide

To follow this line of inquiry we constructed a narrative interview guide based on four interview themes. The interview guide was made in the projects research group and a pilot test of the interview was conducted by the researchers and the interview guide was revised in accordance with the results of the test. The 2x13 interviews were conducted by two consultants of the project group, who were trained to conduct narrative interviews by the researchers.

Starting the interview we asked the leadership group to reflect upon how three forms of data produced insights into students learning and wellbeing. The three forms of data were presented via three photos: See appendix C. The purpose was to challenge the leadership group’s presupposedly narrow understanding of data as numbers and graphs. We wanted to get narratives about how they understood and used data in a broader sense – both quantitative and qualitative.

Hereafter, we asked the leadership group to map the various forms of data they use on a data sheet (see appendix B) using five colour pens:

- Blue: Data they work with currently in the school year
- Yellow: Data they are about to stop working with.
- Black: Data that does not work. For example: "Nice to get rid of". "Tested but did not work", "Not relevant"
- Green: Data they want to work with.
- Purple: Dream and fantasy data: data not yet available. “If you could decide - what data would you work with?

The purpose was to impel the leadership group to narrate not only which kind of data they work with, but also which data was difficult to work with and which data they saw an potential in using in their schools.

Then we asked the leadership group to reflect upon where, with whom, how and why they worked with data and leadership. The idea was to get a sense of how the leadership connected data and leadership. Finally, we asked about the fears, hopes and dream connected to data and leadership.
In analyzing the empirical interview material, we based our coding on a thematic, structural and performative analysis (ibid.) based on these questions:

**What is the data narratives all about?** How do the leadership group generally understand data and data usage? (thematic)

**How does the interviewee organize their data narrative?**
How is the available data linked to the use of data?
What does the leaders tell us about possibilities and limits in data use at their school?
What does they tell us about what they cannot do with data?
What does they tell us about what they want to do with data but cannot yet do?
What is their data dream?

**What actions does the data enable the leadership group to perform?** What kind of solutions do they introduce to specific kinds of challenges?
The consultants summarized the interviews in data displays regarding data and data use (one display for each school).
### Karaktergennemsnit i bundne prøvemål ved folkeskolens afgangsprøve

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