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Introduction

Why do some pupils perform poorly in maths? The answer depends in part on what counts as doing poorly in math. This paper is based on the assumption that notions of poor performance are based on mental and materialised constructions that change over time. We formulate such notions as part of collective processes and conflicts and it is important to put such constructions in historical context so that current explanations do not appear obvious or somehow necessary. The explanations are never neutral and often serve as tools for categorisation. There is no agreement on what dyscalculia covers (in the same way as there is disagreement about the definition of maths difficulties), which is precisely one of the points of the present article.

By way of introduction, I first explain some of the academic approaches and political processes that have been offered as important for drawing attention to pupils who perform poorly in maths classes. These approaches and processes are elaborated in the analysis, where I (with theoretical inspiration from the French sociologist Bourdieu) examine professional stances concerning low-performing pupils in maths through a systematic reading of Scandinavian professional and academic journals. The analysis summarises four co-existing
and conflicting positions in the Scandinavian field of maths didactics. Finally, I also describe Scandinavian trends related to Danish school politics by examining ministerial subject-specific booklets called ‘Common Goals’ for the primary school subject of maths.

According to Magne (2006, p. 8), the first publication on ‘failure to master mathematics’ was written by an Austrian doctor in 1885. Since then, a considerable amount of research has been conducted by doctors and psychologists who take as their point of departure the functioning of the brain. This research dealt primarily with elementary arithmetic (e.g. Butterworth, Varma, and Laurillard 2011; Geary et al. 2008). A neurological approach not only dominated research in relation to pupils who perform poorly in maths but also prevailed in the field of special education more generally (Clark, Dyson, and Millward 1998; Larsen 2011). Although increasing numbers of low-performing pupils are being educated in inclusive mathematics settings, there is little research in these settings (Lambert 2015).

It is possible to trace attempts to synthesise special and general education, and develop inclusive learning environments in the USA and Europe as far back as the 1980s (Ferguson 2008); but today, an inclusive school is not only a humanistic and pedagogical ideal, it has become a political demand. Thus, all Nordic countries (i.e. Iceland, Norway, Finland, Sweden and Denmark) are currently implementing school reforms that change the organisation of support to pupils with special needs so that emphasis is placed on inclusion rather than segregation (Ministry of Education 2013; Ministry of education, science and culture 2011; Nilholm and Göransson 2013; Thuneberg et al. 2013; Undervisningsministeriet [Ministry of Education] 2012).

It is interesting to examine Denmark more closely since the political inclusion agenda in Denmark began in 2010 with the disclosure that 5.6% of all pupils in primary and lower secondary education were taught in segregated settings using segregated forms of teaching. Further, special education accounted for approximately 30% of total public school expenditures (Finansministeriet [Ministry of Finance] 2010). In 2012, Denmark passed a new act limiting special education to pupils needing support nine or more hours a week (Undervisningsministeriet [Ministry of Education] 2012). The political target was for 96% of all pupils to be included in regular classrooms by 2015 (Finansministeriet [Ministry of Finance] 2012). For maths teaching the act means that today there are pupils taking part in lessons who previously received special education. In other words, maths teachers have been given academic responsibility for all pupils in the class including meeting their learning needs within the framework of general classroom teaching.

The goal of this article is to explore explanations and practices about pupils who perform poorly in maths. This makes it possible to show what is understood, recognised and acknowledged as legitimate mathematics problems, and what can be done practically in the classroom as well as at structural-political levels.

Theory, methodology and data

Sociological field analysis

Throughout the article, I will focus on understandings of knowledge and forms of practice that dominate in general education classrooms. This is an investigative approach in which the formation and content of various categories are perceived as products of historically specific conditions. In order to analyse such conditions, I use Bourdieu’s concept of field.
Historically, a field is constituted gradually as a result of conflicts between different positions. It is social spaces like these that Bourdieu calls fields (Bourdieu 1998; Bourdieu and Wacquant 1992). The concept of position represents an agents’ way of relating to the struggle to consolidate or change the current power relations in the field: ‘Bourdieu’s concept of position thus refers to the agents as representatives of interests’ (Mathiesen and Højbjerg 2003; p. 324, original italics). In other words, a position is not the same as a person. The points of view should not be perceived as dichotomies, but seen as an ensemble of competing rationales. Point of view denotes ‘the principle of a view adopted from a point located in social space, a perspective which is defined, in form and content, by the objective position from which it is adopted’ (Bourdieu 1998; p. 13 – original italics). This means that the notions put forward by the agents should be seen in relation to other agents and thereby in relation to the field that they co-create. When I examine a point of view, I look for the rationale that the point of view is trying to advance. Such a rationale is perceived as an orientation of interest, which means the actual content (which is not necessarily a conscious position-taking) in relation to other positions within the field, for example, the field of maths didactics, or fields, such as special education or school politics. A field is relatively autonomous, but ‘the result of these struggles is never completely independent of external factors’ (Bourdieu 1993, p. 184).

One way of grasping notions about pupils is to identify the competing rationales that provide the framework for what is perceived as the reasons some pupils perform poorly in mathematics and what should be done in response. Thus, through specific analyses of conflicts of interest and rationales for action, the goal is to carry out a ‘sociological field analysis’ that captures what has value in the field of maths pedagogy – and what does not (Mathiesen and Højbjerg 2003, p. 314).

**Empirical material**

The study focuses on the period 1995–2014, since the focus is on explanations about pupils who perform poorly during a period of increased efforts towards inclusion. In sociological field analysis, the work of analysis and identification takes place simultaneously, because it is during the analysis that it becomes clear to what extent other things should be included for more insight into the dynamics of the field. Thus, the same conflicts must be examined several times in order to see how things identified are connected to other positions:

The program of observation and analysis through which it is effected is not a blueprint that you draw up in advance, in the manner of the engineer. It is, rather, a protracted and exacting task that is accomplished little by little, through a whole series of small rectifications and amendments (Bourdieu and Wacquant 1992, p. 227).

This means that what is ‘registered’ is not simply a reproduction of texts. Some things are rejected and others chosen so that gradually a pattern emerges of relations in the social space studied. For example, in contrast to systematic reviews, the goal is not to ‘produce more neutral consensus descriptions’ (Mathiesen and Delica 2007, p. 190). Thus, after I compiled a 25-page literature review (the final version was 65 pages), my method changed to look for orientations of interest that were not already described. When I read new texts by the same authors, I looked to see if their orientation of interest was significantly different from what I had already identified. For example, authors like Magne (Sweden), Lunde (Norway) and Lindenskov (Denmark) are frequently cited. The objective was not to count how many times a person has written, but to analyse conflicting rationales. Specifically, all texts have been described in relation to a
schematic structure that is inspired by (Mathiesen & Delica, 2007). The texts were summarised using the following categories: (1) Article, (2) Media, (3) Author, (4) Nature of the initiative, (5) Context of action, (6) Orientation of interest.

The method of literature search used in the field analysis was primarily a manual search. I collected copies of all of the relevant journals so I could get an overview of the contents of the articles. This had the advantage of not limiting me to (possibly incorrect) search words and specific databases. However, it was a quite time-consuming way of working, and I had to be selective. So the field analysis deals exclusively with Scandinavian countries. It not only includes perspectives from science but also points of view expressed in professional journals by consultants, school psychologists, school teachers and lecturers in teacher education. In this way, the field analysis provides insight into professionals’ discussions in the field of maths didactics in Scandinavia and not just published research studies.

I selected a total of 103 articles from journals and professional journals that together covered much of the Nordic literature in the field of maths pedagogy related to primary school. Special education and maths pedagogy is a nascent field and articles are published primarily in Norwegian, Swedish and Danish. I have translated quotes from these articles. In the presentation of findings, the country and profession behind the statements are not indicated as the intention was to explore the rationales the statement supports. A complete overview of all 103 articles is available in the PhD dissertation: Inclusion efforts in mathematics teaching. An empirical study of maths teachers’ classroom leadership and pupils’ participation in the Danish public school (primary education) (Schmidt 2015).

The selected journals were:

- NOMAD (the journal of Nordic Studies in Mathematics Education)
- Anthologies of conference articles from NORSMA (Nordic Research network on Special Needs Education in Mathematics)
- Matematik (Danish professional journal for teachers of mathematics)
- Nämnnaren (Swedish professional journal for teachers of mathematics).
- Fagbladet Folkeskolen (professional journal for all teachers in the Danish school system).

In some cases, it was relevant to include the Norwegian journal for maths pedagogy: Tangenten. However, I decided it did not contribute much to the analysis since the Norwegian perspective was represented in the other journals and professional journals. It is largely the same authors who are published in Danish, Swedish and Norwegian contexts as so few researchers deal with pupils who perform poorly in mathematics. In total, the empirical material comprised 6 articles from NOMAD, 24 articles from NORSMA, 16 articles from Matematik, 36 articles from Nämnnaren and 21 articles from Folkeskolen.

I read all articles looking for structures illustrating different ways to relate to pupils who perform poorly in maths. During this process, various themes emerged regarding the causes of the problem and what should be done which are explained in the following section.

**Approach to and presentation of the analysis**

There are many ways to understand learning difficulties. In the field of special education, there are individual-oriented perspectives that compete with approaches that emphasise the context (Gustavsson, Traustadóttir, and Tossebro 2005; Skidmore 2004). With regard to pupils who perform poorly in maths, an analogous struggle takes place (Heyd-Metzuyanim 2013;
Mcdermott, Goldman, and Varenne (2006). It is interesting to see that these struggles play out in different settings and in different journals. Bagger and Roos (2015) examined research published in special education journals and journals that report on studies of maths teaching, respectively. Bagger and Roos found that a very different picture emerges with regard to ‘the conceptualisation of students in special educational needs in mathematics’ both in terms of the cause of the difficulties and what support should be initiated. The two authors found that articles from special education journals have a more individually oriented understanding of the issue, while a context-related perspective dominates the maths journals.

As I read, I recognised Bagger and Roos’s conclusion that a context-related perspective dominates the academic field of maths pedagogy, which could be seen in two types of Nordic academic articles (NOMAD and NORSMA) that make up the basis of this analysis. Furthermore, it turned out that this did not only apply to the academic field, but dominated the professional debate in the entire field of maths didactics. It is also seen in the points of view expressed by consultants, school psychologists, school teachers and teachers of teacher education. However, there are also less prevalent perspectives. These findings are presented through two general, thematic approaches. First, I present what I have termed ‘the symbolic understanding of knowledge’ using distinctions in relation to causes, numbers and professional perspectives. Next, I present what I call ‘the materialised form of practice’ through distinctions in relation to organisation and assessment (Figure 1).

### Analytical findings

#### The symbolic understanding of knowledge

The following describes the prevalent rationale in the field of maths pedagogy, namely that the social context is one of the main reasons that pupils perform poorly. In addition, it is explained how this causal understanding affects how many pupils the problem concerns and how the professional perspective indicates different orientations of interest. The article uses the authors’ own concepts when referring to their contributions to the professional debate.

Jørgensen was one of the first to represent the point of view that if knowledge develops between people, then ‘difficulties of creating and acquiring knowledge must also develop between people’ (Jørgensen 1997, p. 7). A couple of years later, that problem was defined not only as an interpersonal relationship but also as determined by society:

The school defines high achievement as good ability to meet the objectives of the curriculum; low achievement occurs when the objectives are not met. I think that ‘low achievement’ is a human explanation (...) It is not a fact. It is a social interpretation (Magne 2000, p. 7).
Magne emphasises that when achievement does not occur, it is perceived as if it were a difficulty, and since it is the government that makes decisions on curricula, it is politicians who define maths difficulty. Magne suggests that people should stop talking about mathematical disabilities and instead refer to mathematical differences. ‘According to this way of thinking, mistakes in maths are something positive, because through them you gain an explanation for how you can do something better’ (Magne 2000, p. 9).

A further development of the context-oriented rationale is illustrated by Dalvag and Lunde (2006), who distance themselves from a special education approach that they call ‘a medical/pathological model’ where the pupil works alone with numbers and numerical operations. Instead, Dalvag and Lunde develop a compass-based model that draws upon a sociocultural perspective in which difficulties are perceived ‘as a societal more than an individual problem’ (Dalvag and Lunde 2006; p. 48). The compass metaphor sees the pupil as ‘rotating away in the landscape – and a compass is needed to indicate directions the pupil and the teacher can go to master maths’ (Dalvag and Lunde 2006, p. 49). The model shows that the form and content of teaching are just as important as the pupil’s background for learning.

The didactic approach is also expressed through studies that examine pupils’ perceptions of the causes of their difficulties in mathematics. For instance, Sjöberg (2008) draws attention to the fact that there could be problems with the structure of classes, too large groups of pupils, a noisy classroom, poor communication, not enough teacher help and explanation from teachers and peers. Lange (2008) shows that negative sociocultural stereotyping could contribute to difficulties in mathematics. Lange’s research supports an inclusion perspective in mathematics in which the social and pedagogical forms of practice that hinder participation are examined instead of the shortcomings of the individual.

The context-oriented rationale dominates the field of maths pedagogy, but a less prominent, competing rationale can also be constructed that emphasises individual causes. The idea is that low general intelligence results in ‘maths troubles’ (Jensen 2002; p. 218). Furthering the individual perspective, the concept of dyscalculia is used to describe pupils who get considerably less out of maths than they do from other subjects. (Johnsen 2004). An article on brain research by Lundberg and Sterner (2008) shows that there is a special area in the brain that involves numeracy, and other cognitive explanations are a poor working memory, phonological problems (characteristics that are also seen in dyslexia), difficulties automating, rigidity concerning rules and ADHD. Skovhus (2013) explains that these difficulties are congenital functional impairments, and there should be an officially recognised definition of dyscalculia: ‘Dyscalculia is a functional impairment of neurogenetic origin, which is due to congenital difficulties with the intuitive understanding of amounts and numbers’ (Skovhus 2013; p. 23). Maths difficulties are difficulties acquiring academic skills at school, while dyscalculia is congenital. Many pedagogical and psychological counselling offices ‘refrain from assessing and describing a pupil’s maths difficulties because “a recognised and official definition of the concept is lacking”’ (Skovhus 2013, p. 23).

These differing causal explanations create a demarcation line in relation to the number of pupils the problem concerns. On the one hand, 2–5% of all pupils are presumed to have a congenital functional impairment that results in ‘number blindness’ (Lindhart 2010; Sjöberg 2003). On the other hand, a multifaceted approach that includes didactic, social and emotional conditions results in up to 15% of all pupils considered to be in maths difficulties (Dalvag and Lunde 2006; Lindenskov 2006; Magne 2006). An overview of research reveals
that the border between dyscalculia and non-dyscalculia fluctuates, and whether or not a pupil has dyscalculia ultimately depends on where the border is drawn (Lundberg and Sterner 2009).

Border demarcation can also be produced in relation to professional perspectives. One point of view places value on pupils training their basic skills in the four basic arithmetical operations. This thinking is illustrated by Grønmo (2005) who argues that all pupils need basic skills but not advanced algebra. If pupils perform poorly, this may indicate that they have a weak academic foundation in number processing. This can be connected to the idea that ‘learning methods and strategies that involve training and practising that automate elementary academic skills have been given low priority’ (Grønmo 2005, p. 42). A competing understanding of the subject addresses mathematics as something more than numbers and argues for more focus on measurement, geometry and dealing with posing and solving mathematical problems. According to Lindenskov and Weng (2010): ‘It is not logical to focus on numbers and often on numbers only, which you might suspect test designers believe when attempts are made to diagnose or map pupils’ difficulties. More is needed if you want to activate pupils’ development’ (Lindenskov and Weng 2010; p. 11). Similarly is Fuglestad’s (2013) statement that the teaching of pupils in maths difficulties should take as its starting point creative activity and ‘inquiry’, where pupils themselves figure out how to deal with problems: ‘This is contrasting well known methods where students in difficulties are asked just to do more of the same with most work on basic number competencies’ (Fuglestad 2013, p. 9).

The materialised practice

The following discussion details what the field of maths didactics proposes should be done for pupils who perform poorly. Here, it is the organisation of the teaching and the way pupils are assessed that are the focal points.

Some argue that too much faith has been placed in differentiation of teaching and that instead it is the pupil who is the problem and the pupil should be offered special education. According to this way of thinking, there are too few pupils who receive special education. One example is Johansen (2003), who argues that pupils with special needs in mathematics rarely receive special education because maths teachers have the opinion that they do not want to operate with diagnoses like maths difficulties and dyscalculia. This has resulted in the root cause of maths difficulties being placed on teaching – on the individual teacher’s choice of forms and methods of teaching. (Johansen 2003, p. 6)

Since 2008, early intervention initiatives have offered an intensive, time-limited course of support outside the classroom for pupils who are in or at risk of being in difficulties in the Scandinavian countries. One example is Lindenskov and Weng (2010) who developed an early intervention approach that they explain this way:

the risk of developing anxiety and losing the motivation to learn mathematics is the main argument for ‘early maths intervention’, and therefore, it is crucial that the intervention really takes emotions, motivation and perceptions seriously. (Lindenskov and Weng 2010, p. 10)

A less prevalent rationale exists regarding creating conditions for pupils to receive necessary support in inclusive learning environments. For example, Engström (2000) argues that it is natural that pupils learn at different paces which happens in what he calls ‘an inclusive classroom’. According to Engström, different learning paces should not be the reason for special education assistance. At the same time, he points out that resources and support for
creating an inclusive environment are necessary, but ‘[a]n inclusive school does not mean the same thing as just moving all pupils into the classroom’ (Engström 2000; p. 26); focus should be on the pedagogic and didactic elements and not on what ‘is wrong with’ the individual pupil. Roos (2013), who has a similar point of view, thinks that many pupils, even though they are present in the classroom, are still excluded and barriers that exist for them should be identified so that they can be better supported within the framework of the classroom community. Roos represents a perspective on difficulties where the social practice is a resource to help pupils overcome their maths difficulties.

The final difference of opinion concerns assessment of pupils who perform poorly. In part, it is about what should be assessed, how and by whom. One point of view is that assessment should take place as an interview between the pupil and teacher and should include things like the circumstances at home and attitudes towards and feelings about the subject and school (Holm 2013; Lindenskov and Weng 2010). Another point of view is that a nationally approved test should be developed, which specialists should conduct in order to uncover cognitive functional impairments (Skovhus 2013).

**Positions in the Scandinavian field of maths didactics**

The above analysis presents the central points of contention that emerge repeatedly in all 103 articles. Themes such as causes, numbers, professional perspectives, organisation and assessment appear in many of the points of view presented in the articles. These empirical findings were subsequently classified in six general categories: Problem description, Origin of problem, Subject understanding, Developmental focus, Organisation and Assessment. Based on these categories, four different positions have been identified in the Scandinavian field of maths didactics. The four positions do not exist explicitly in the articles, but can be constructed in relation to competing interests and rationales for action. Basically, all points of
view can be related to different perceptions of whether the problem should be expressed as pupils with dyscalculia or pupils in maths difficulties.

The four positions are: (1) the diagnostic position, which attempts to identify pupils’ lack of mastery of numbers on the basis of cognitive dysfunction; (2) the structural position, which focuses on what structures support and hinder participation in the shared learning environment of the regular maths class; (3) the interventionist position, which focuses on the idea that it may be necessary to use early intensive interventions with individual pupils; and (4) the complementary position, which argues that pupils in maths difficulties should have the opportunity to be supported individually through specially designed initiatives, and that these initiatives should be coordinated with the rest of the differentiation of teaching within the shared learning environment of the classroom. The positions are illustrated in Figure 2 by according to their form of expression.

Using Bourdieu’s notion of field, these four positions are not equally represented in the literature. The dominating symbolic understanding of the problem is a context-related rationale that focuses on didactics and describes the problem as pupils in maths difficulties. Regarding materialised practice, special and early individualised intervention is most prevalent. This means that within the Scandinavian field of maths didactics, the interventionist position dominates the other three. However, due to external political conditions, the structure of the field may well be changing.

 Movements in the field of school politics in Denmark

The field of maths pedagogy is, as mentioned earlier, a relatively autonomous field, but it is at the same time not completely independent of external factors like school politics. The Danish example makes an exemplary case since, as described earlier, schools have relied on the practice of exclusion of students in/with learning difficulty, but now there is a political demand for change. First, the changes appearing in the Danish Ministry’s ‘Common Goals’ maths booklets for the Danish state schools are described and then related to a new assessment practices for pupils who perform poorly. The goal here is to contribute to an understanding of the relationship between the professional debate on maths didactics and that part of Danish school politics that creates the framework conditions for maths teaching.

In the Ministry’s ‘Common Goals’ maths booklets, learning difficulties are not mentioned explicitly until 2003, but indirectly the theme surfaced in 1995: ‘It is possible that some pupils (…) are not able to cope with the level of abstraction introduced’ (Undervisningsministeriet [Ministry of Education] 1995; p. 21). The booklets draw attention to professional perspectives when it describes that pupils ‘should build up through the subject a versatile tool to solve practical and theoretical problems’ (Undervisningsministeriet [Ministry of Education] 1995; p. 13, my italics), and that ‘…large areas of the subject involve skills and concepts that form part of the further construction of the subject. Failing to understand a single part of this construction may result in overall continuity being lost’ (Undervisningsministeriet [Ministry of Education] 1995, p. 25). The quotes indicate an understanding of learning where pupils’ innate abilities differ, and for some pupils, we must set absolute limits on the level of abstraction expected. The professional perspective in 1995 then appears to be instrumental and points towards an individually oriented understanding of the problem.

In the 2003 ‘Common Goals’, a radical change takes place: now it is the teachers’ (lack of) teaching competence that is the cause of pupils’ difficulties. It encourages maths teaching
to build on constructivist learning theory and relate to pupils’ everyday lives. This directly contrasts with special education initiatives that are ‘constructed and organised around presenting, doing calculations and checking the answers, and which are primarily based on textbooks and assignment work’ (Undervisningsministeriet [Ministry of Education] 2003, p. 70).

The teaching approach is further developed in the 2009 ‘Common Goals’, but it is no longer the maths teachers who are under attack. Instead, the booklet argues for an approach where pupils’ resources are the focus. The booklet describes inclusive maths teaching as characterised by teaching oriented towards dialogue and a sense of community: ‘It is important for the teacher to search for the pupils’ resources, for there is always something or other to build on’ (Undervisningsministeriet [Ministry of Education] 2009, p. 49).

The professional perspectives from 2003 and 2009 point towards a context-oriented rationale. This rationale has dominated in both the professional debate and in the ‘Common Goals’ booklets in recent years. Yet still unresolved is whether the relative strengths of the different rationales in the field of maths pedagogy will change with the political agreement to raise the academic level of Danish state schools. The new agreement urges that early efforts should be directed at ‘number blind pupils’ (Aftale mellem regeringen (Socialdemokraterne, Radikale Venstre og Socialistisk Folkeparti), Venstre og Dansk Folkeparti om et fagligt løft af folkeskolen, 2013, p. 7). The question of relative strengths becomes even more central in the most recent ‘Common Goals’ maths booklet with simplified goals (2014), and in which learning difficulties are not mentioned. However, ‘points of attention’ are stated. It describes first and foremost the areas of competence within numbers and algebra.

Because any kind of assessment can help define what is considered most important within a subject (Clarke 1996), also called the ‘backwash effect’ (Spratt 2005; Wall 2000), it is interesting to look more closely at the national dyscalculia test that the Danish Ministry of Education requested proposals for in 2014. In the required specifications of the request for proposals, the Ministry makes reference to the fact that the Ministry bases the development of a test for number blindness on an understanding of number blindness as a learning difficulty that can be identified and delimited based on research results (Undervisningsministeriet [Ministry of Education] 2014). This knowledge base uses as a starting point a review of research prepared by the Danish National Centre for Social Research (SFI) where the definition of dyscalculia is described as a functional impairment that comprises marked difficulties understanding and dealing with a basic handling of numbers, such as comparing numbers and amounts or counting small numbers of objects. In addition, there are marked difficulties with addition, subtraction, multiplication and division (Larsen and Bengtsson 2013, p. 17).

No other national tests using alternative understandings of the problem have been requested. Thus, school politics can, by focusing on numbers and number blindness, advance the relative strengths of the individually oriented and context-oriented understandings of the problem. Indications are that these struggles (that are also taking place simultaneously in the field of special education) may result in a new understanding of the problem: a cognitive understanding of the problem that will influence forms of practice in Danish schools in relation to pupils who perform poorly in maths teaching. The use of Bourdieu’s theory of fields helps articulate a struggle to change current power relations in the field towards a focus on pupils with dyscalculia – instead of pupils in maths difficulties. In this way, the diagnostic position is advanced. In other words, symbolic systems are social products that
contribute to creating the world and ‘one can, within limits, transform the world by transforming its representation’ (Bourdieu and Wacquant 1992, p. 14).

**Conclusion**

The analysis illustrates historical shifts within the field of maths pedagogy. The focus in the 00s to enhance special education in mathematics can be seen as a critique that there was previously too little support in special education, while today there are two coexisting but different orientations of interest. The dominant position seeks to develop early, short-term compensatory interventions for pupils who perform poorly. It is the pupil’s competence that should be developed. There is a less dominate position that seeks to incorporate the knowledge and experience of special education in general education so that prevention efforts can be included in the shared learning environment of the classroom. In other words, the professional debate found in the academic and professional journals studied there is a particular focus on developing special education rather than general education in relation to pupils who perform poorly.

The dynamics of the Scandinavian field of maths didactics are characterised by a dominant symbolic understanding of knowledge that sees that the causes of poor performance can be both psychological and didactic; that many pupils experience learning difficulties; that understanding mathematics includes more than numbers; and that there are many paths to knowledge. With this perspective, there is an opportunity to approach maths difficulties in a more inclusive way as a continuous pedagogical process (rather than a goal that can be achieved once and for all), which acknowledges diversity as the norm and supports the legitimacy of different pupils having different needs. This line of approach encourages subject-specific pedagogies that also include the relationships among teachers, classmates and families.

The question becomes whether this symbolic understanding of knowledge is possible to achieve in a school context where the struggle to define what mathematics is and how pupils should be assessed is influenced by school politics. To some degree, school politics currently supports the rationale that pupils who perform poorly should primarily work on mastery of numbers and is developing a national test to pinpoint individuals’ cognitive dysfunctions. Will the inclusion agenda (inadvertently) be by-passed by a diagnostic position focusing on individuals, numbers and tests?

Returning to the opening question, then: *Why do some pupils perform poorly in maths?* These findings suggest that the response of most of the field of maths pedagogy would be: *Because of the way we teach and test*, while the political response to a greater degree would be: *Because some pupils have a cognitive dysfunction*. If inclusive practices are to be developed, which support children in both cognitive and context-related difficulties, both responses must be valued.

**Notes**

1. Twelve internationally reputable journals (six within each area) were studied for the years 2006–2013. The criteria for selection were that the journal articles were peer reviewed and had a high number of citations. A total of 28 articles were found that dealt with pupils with/ in special needs in mathematics.
2. Number blindness (talblindhed) is used in Scandinavia as a synonym for dyscalculia (dyskalkuli), just as word blindness (ordblindhed) is used synonymously with dyslexia (dysleksi).

Disclosure statement

No potential conflict of interest was reported by the author.

Notes on contributor

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