CLASSROOM LEADERSHIP, INCLUSION & MATH DIFFICULTIES
- GETTING MATH TEACHING MOSTLY “RIGHT” BUT…

Maria Christina Secher Schmidt
Associated Professor and PhD-fellow at Metropolitan, University College &
Department of Education, Aarhus University mase@dpu.dk

KEYWORDS
Classroom management/leadership, inclusive education in mathematics, learning
difficulties, sociomathematical norms, student participation, teaching strategies

GENERAL DESCRIPTION
My approach to learning difficulties should be seen in a constructivist light. I am
inspired to view mathematics as life skills which also are stressed in the conception
about Mathematical literacy. The theoretical viewpoint focuses on learning
difficulties not (simply) as a developmental disorder that is inherent to the individual
child, but (also) as something created in a social context.

I direct attention to the articulated and unarticulated standards for how we 'do school'.
Being able to challenge the unspoken understanding of a culture of learning, requires
a focus on how to tell a particular order forward, and thus how to create a special
classification of what are, respectively, normal and abnormal (Hall 1997; Bourdieu
1997).

There is no consensus of opinion on why students are in difficulty at school
(Skidmore 2004). Individual oriented as well as contextual understandings exist. For
example, Clark, Dyson, & Millward (1998) describe a psycho-medical rationale as
part of a positivistic paradigm that has dominated research in special needs education.
The paradigm is driven by an interest in being able to explain symptoms through
testing and in this way pinpoint what the deviation consists in so that a diagnosis and
an appropriate intervention can be worked out. The positivistic view is challenged by
research that sees special needs as being socially produced, that is, through
discourses, social processes, and socio-economic structures. Just as there are different
positions within research into special needs education, research into the didactics of
mathematics also points to various models to explain why difficulties in mathematics
arise (Engström, 2000). Engström categorizes the reasons as medical/neurological,
psychological, sociological/environmentally sensitive, and/or didactic. Similarly,
Ernest (2011) argues for taking a broader view of the reasons for difficulties in mathematics and not just seeing them as neurologically based. To understand difficulties in mathematics it is also necessary to focus on the affective and social context students are part of and which in some cases is the cause of (or a contributing factor to) the problems. Sometimes the difficulties are: ”caused by the curriculum, the teacher or the school as much as by the learner. In such cases, the ‘medical’ or ‘deficit’ model of special educational needs fails, because it looks for solutions in the wrong place” (Ernest, 2011:24). This understanding of difficulties in mathematics reflects a shift in international research in the didactics of mathematics from seeing problems as localized in the individual to seeing difficulties in mathematics “as arising out of the interaction between learners and their learning environments” (Ernest, 2011:5).

My research explores how math teachers’ beliefs, choices of content and methods can support communication patterns in the classroom that enable students to get appropriate help when learning difficulties arise. My central research question is: how are the math teacher’s pedagogical choices a co-creator of an inclusive or an exclusive learning culture?

**METHODOLOGY**

The study investigated math teaching in four classes at two different primary schools that teach grades 1 - 4. Participants were strategically selected because all four math teachers had specific preparation to work with students in math difficulties because they took part in a project about early math intervention. I assumed that specific knowledge would enable the teachers to have more resources, skills and reserves of energy to promote inclusion of students in learning difficulties in the teaching of mathematics than teachers without this qualification. This supposition was supported by the Danish Evaluation Institute (EVA 2011:46). The logic behind extreme case selection is that it is possible to learn something valuable from exceptional surroundings that can be relevant in more typical settings (Flyvbjerg 1991, Neergaard 2007).

The observations took place in classrooms where the special support is integrated. In every class I focused on two students who had been assessed to have difficulties in understanding math and one comparison student without difficulties. I carried out non-participant observation for a total of 35 mathematics lessons.

I did two types of observations. One was based on making structured student participation profiles and used *The Student Membership Snapshot* (Ferguson et al. 1995; Tetler et al. 2011) which is designed to provide a picture of the classroom with focus on how a particular student in learning difficulties fits as a learning member of
the classroom. The other type of observation was video recordings and I taped every lesson using two cameras. One was placed so that it pointed at one of the focus students; the other captured the whole class.

I received 83 student essays on views of math. Students were given a blank piece of paper with the instruction: “Write and perhaps draw (you are free to use colors) what you think about math?” In addition, I conducted four semi structured teacher interviews and 12 student conversations. All 16 interviews were audiotaped and then transcribed.

EXPECTED RESULTS
The student voices that emerge from the essays and interviews show that the focus students have a lot of positive beliefs, attitudes and feelings towards math and math teaching as do most of the other students who participated in the research. The teachers’ didactic choices and actions support an active learning environment for students with diverse needs and the teachers are practicing dimensions of inclusive classroom leadership that are known to be successful.

The students in math difficulties participate but... the question is to which extent they understand the underlying meaning of the task? The students don’t reveal their difficulties because they do what they can and in the process look just like their peers – often looking to their peers for clues about what to do. This embodied disposition to act like their classmates means the student exhibits the expected behavior – they fit in. This strategy results in a situation where the teachers can’t see what the students don’t understand – the difficulties the students meet in the mathematical landscape becomes invisible to the teachers eyes.

REFERENCES


Danmarks Evalueringsinstitut 2011: Indsatser for inklusion i folkeskolen, EVA


Ernest, P. 2011: Mathematics and Special Educational Needs: Theories of mathematical ability and effective types of intervention with low and high attainers in mathematics, Lambert Academic Publishing


Flyvbjerg, B. 1991: Rationalitet og magt - bind 1, Akademisk Forlag A/S


Hall, S. 1997: ”The spectacle of the other” i Hall, Stuart (red.): Representation: Cultural representations and signifying practices. SAGE Publications: London

Neergaard, H. 2007: Udvælgelse af cases i kvalitative undersøgelser. Forlaget Samfundslitteratur

