

Expert Round Table – 13th May 2014 in Odense

Learning about Learning Difficulties in Mathematics: Problems and Solutions

Agenda:

12:00: Lunch

12:45-13:00: Welcome and introduction

13:00-15:00: Short presentations

13:00-13:20: Presentation by Lena Lindenskov

13:20-13:40: Presentation by Martin Zacharias

13:40- 14:00: Presentation by Henrik Skovhus

14:20-14:40: Presentation by Torben von Seeler

14:40-15:00: Presentation by Mikael Knattrup

15:00-15:20: Coffee break

15:20-16:45: Discussion

16:45-17:00: Summary and outlook

17:00: End of meeting

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Room: U49



Abstracts:

Martin Zacharias (Institut für Qualitätsentwicklung an Schulen Schleswig-Holstein - IQSH)

„Maths makes you strong“ (*Mathe macht stark*)

A project designed to ensure basic mathematical competencies just like skills in reading and writing.

Mathematical competencies are a necessary prerequisite to be able to do a good and successful job in many areas of life (work, cultural activity, economy etc.).

Accordingly, our schools have to provide all pupils with an adequate standard of education. Many studies have shown that this goal has not been reached by twenty percent of all fifteen-year-old students.

The project „maths makes you strong“ is a concept for maths lessons which has been specially developed to reach **that** target group with hardly any fundamental knowledge (of what maths is all about) in order to avoid lack of basic ideas.

The material consists of individual folders for the students and a folder for teachers including additional didactic commentaries, solution sheets and tests for teachers to diagnose the learning progress of their students.

Seven subjects (negative numbers, fractions, areas and solids, measuring, probability, data, percentage calculation) are subdivided into three levels (“start / climb / peak”).

In addition, a box with material for action-based learning is provided including for example Geobrettern, Steckwürfeln or Winkelscheiben.

Torben von Seeler (Institut für Qualitätsentwicklung an Schulen Schleswig-Holstein - IQSH)

Preventing learning difficulties in mathematics at the beginning of primary school - concept and implementation of the project *Mathe macht stark Grundschule*

Handling special difficulties in children's acquisition of skills in arithmetic at the beginning of school came the center of attention in the German didactical discussion in the last years. Primary school teachers are hardly prepared to help pupils with these difficulties effectively in everyday lessons and empirical studies (TIMMS 2011) show that at the age of 10 almost 20% of all pupils have massive problems in mathematics.

Teachers education in and after university does not focus on these didactical questions, although every recent publication states the importance of sustainability in achieving basic competencies in this early stage of learning. Furthermore almost half of the mathematics lessons in Schleswig-Holstein in primary school are given by a non-mathematics-teacher.

Reducing the number of pupils belonging to the measured "risk-group" is the main goal of the recently started project *Mathe macht stark - Grundschule* (Math makes you strong – primary school). The project contains teaching material with both, a diagnostic and a supporting character, following a catalogue of possible stumbling blocks in the development of skills in arithmetic, e.g. counting competencies, part-whole-concept. The diagnosis is divided firstly in a screening of a larger group to identify pupils who might need support in special contents and secondly in interview situations, that aim at the individual strategies and mental representations.

The 100 schools taking part in the project send their teachers to a series of advanced trainings, in which handling the material and the didactical background of the contents are covered. The implementation of the project in schools varies: Some schools use remedial lessons, others integrate the contents in the regular lessons with or without strengthening the teaching resources. The effects of the project are evaluated by the Leibniz-Institut für die Pädagogik der Naturwissenschaften und Mathematik an der Universität Kiel (IPN).



Lena Lindenskov (associate professor at the Department of Education, Aarhus University)

Lindenskov will give an overview of research concerning strategies for helping students with learning difficulties in mathematics especially regarding the comprehensive school/Folkeskolen (grade 0 to grade 10) in Denmark.

Henrik Skovhus (a consultant working in the northern part of Denmark, Aalborg, with young people and adults with difficulties in math)

Skovhus will tell about the experiences with helping young people with learning difficulties in math in his region especially with a focus on a project he has been part of and on a discussion about the difference between dyscalculia and difficulties in the subject.

Mikael Knattrup (a practicing mathematics teacher with 14 years of experience working in a private comprehensive school in Odense)

Knattrup will tell about his experiences with using different kinds of strategies and teaching differentiation to help students who are poor achievers in math to understand the subject better.

