Slide 1. Making Mathematics Accessible – A study of how paraeducators work with adaptations

Ulrika Vanhoenacker, Special education teacher, Consultant at the Resource Center Vision

Slide 2. Support offered to schools

* Courses at the Resource Center Vision
	+ Class teachers
	+ Paraeducators
* Support in the schools from consultants

Slide 3. Why study adaptations?

* The teachers themselves say they are unsure of how to do it well
* Nevertheless the teachers must manage it

The aim:

To highlight how paraeducators adapt mathematics education to the needs of 7-9 year old braille reading students in primary school.

Slide 4. Methodology

* Three schools, each with a paraeducator who had attended courses at the Resource Center Vision
* Two observations at each school
* One stimulated recall interview with each paraeducator

Slide 5. School 1

* The paraeducator had started a secondary school teacher training programme.
* The regular class teacher was on sick leave.
* First observation: a substitute math teacher who had not attended any courses at Resource Center Vision. The braille display was not functioning.
* Second observation: a substitute teacher who had attended courses at Resource Center Vision.
* Math book in embossed braille, computer with a braille display and a braille keyboard.

Slide 6. School 2

* The paraeducator was a preschool teacher.
* The class teacher hade attended courses at Resource Center Vision.
* Math book in embossed braille.
* The student did not use the computer.

Slide 7. School 3

* The paraeducator was a primary school teacher.
* The class teacher hade attended courses at Resource Center Vision.
* Digital version of the math book.
* Computer with a braille display.

Slide 8. Forward planning

* School 3 – they planned one hour before school started
* Schools 1 and 2 – difficulty finding time to plan in advance

“the math teacher and I hadn’t planned this in advance /../ as the regular class teacher and I used to do, because she knows, that we must work like that, to keep up.” (Paraeducator 1)

Slide 9. Simultaneous activities

* The student wanted to know what the classmates were doing.

“Maybe the student had heard of this booklet and… maybe even these tasks with measuring pens and… and I hadn’t had time to prepare it in advance for the student to get it when the others got theirs.” (Paraeducator 2)

“the student always wants to do the same as the others.” (Paraeducator 2)

Slide 10. Simultaneous activities

* Lack of time

“You noticed it, it is impossible to follow the class teacher’s pace. But we usually… it’s already a habit… first we listen to the class teacher and… then we usually work individually… The student must touch and feel, hold a lot of stuff in the hands. The whole situation becomes impossible. /…/ Even though everything had been adapted in advance.” (Paraeducator 3)

Slide 11. Simultaneous activities

* When teacher do not verbalize their teaching.

“Here are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10… ten thousands. Ten times 1000 is 10 000. Here they have actually put together ten of these. There are these and then there are those. Ten of those. Ten times 100 is 1000. Ten of these, it is 100, and then you have a little blipp here… (referring to a unit) and that is one… Great, now I think you really know this! I just wanted to show you, how logically it has been constructed and how important it is to know how number bonds to ten.” (Class teacher 3)

Slide 12. Prioritization

* Paraeducator 3 made an assessment in advance of which particular exercises the student needed to do.
* Paraeducators 1 and 2 did not make any assessments in advance.

Slide 13. Best practices

Adaptations lead to participation and independence, which lead to learning and development.

Slide 14. Summary

* the paraeducator should be a trained teacher
* the class teacher and the paraeducator should work together to plan the lessons
* the class teacher should always verbalize the teaching
* the paraeducator should not present tactile materials to the student during the class teacher’s lesson
* the class teacher or the paraeducator should prioritize in advance which particular tasks the student will undertake

Slide 15. Thank you for listening!