

A Family-School Partnership to Improve Deaf Children's Education

National Deaf Children's Society

Department of Education



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Acknowledgments

Schools, teachers and children

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SUPPORT FOR THIS PROJECT

NDCS

What does it mean to learn mathematics?

- The relative importance of
 - Reasoning
 - Computation skills and memory

Learning to count in Japanese

-	10 ju	20 niyu	30 sanju
1 ichi	11 juichi	21 niyuichi	
2 ni	12 junii	22 niyuni	
3 san	13 jusan	23 niyusan	
4 shi			
5 go			
6 roku			
7 sichi			
8 hachi			
9 ku			99?

Logico-mathematical schemas important in primary school

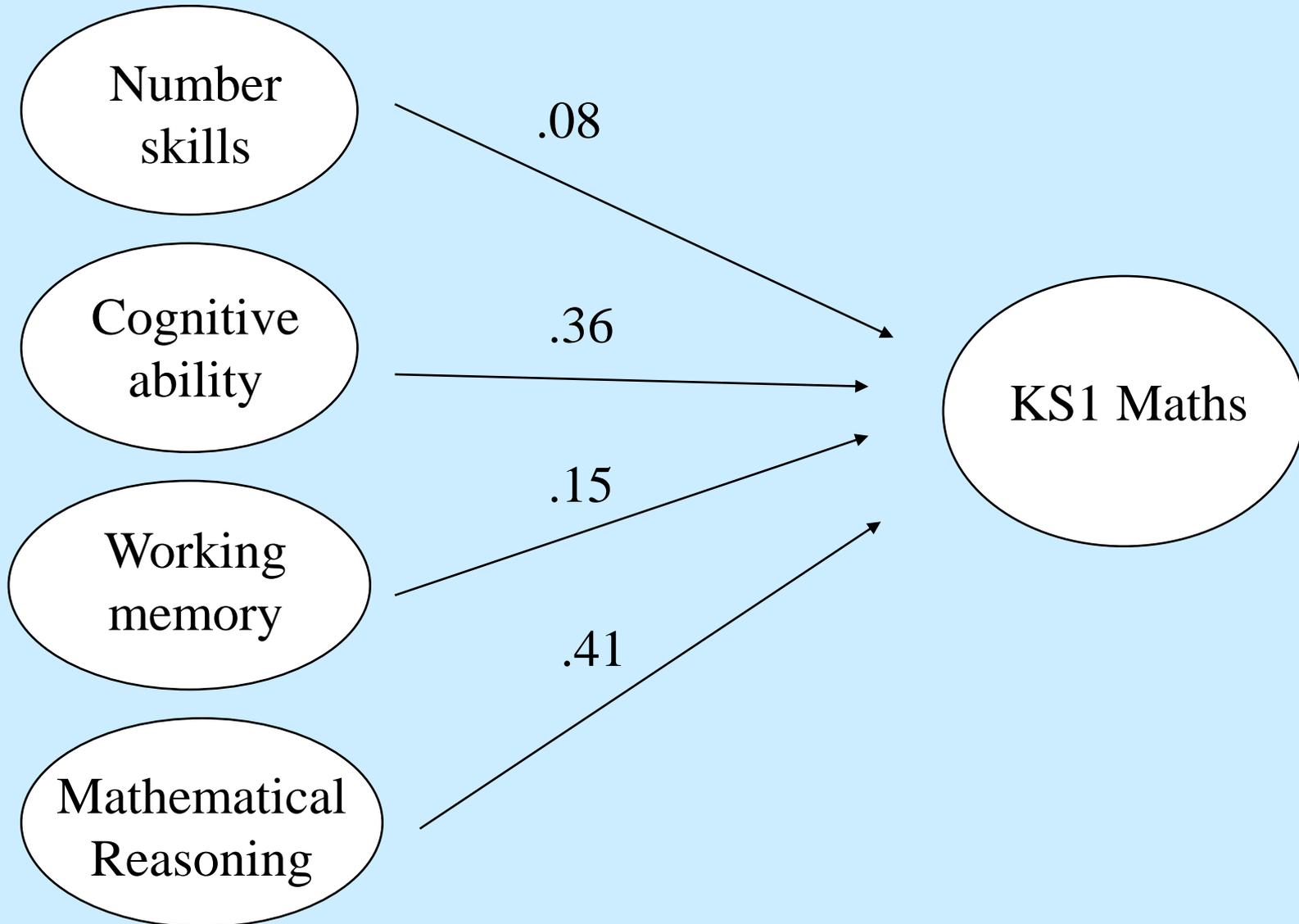
- Additive composition of number
- The inverse relation between addition and subtraction
- One-to-one and one-to-many correspondence

How do we know whether a child understands these logical connections?

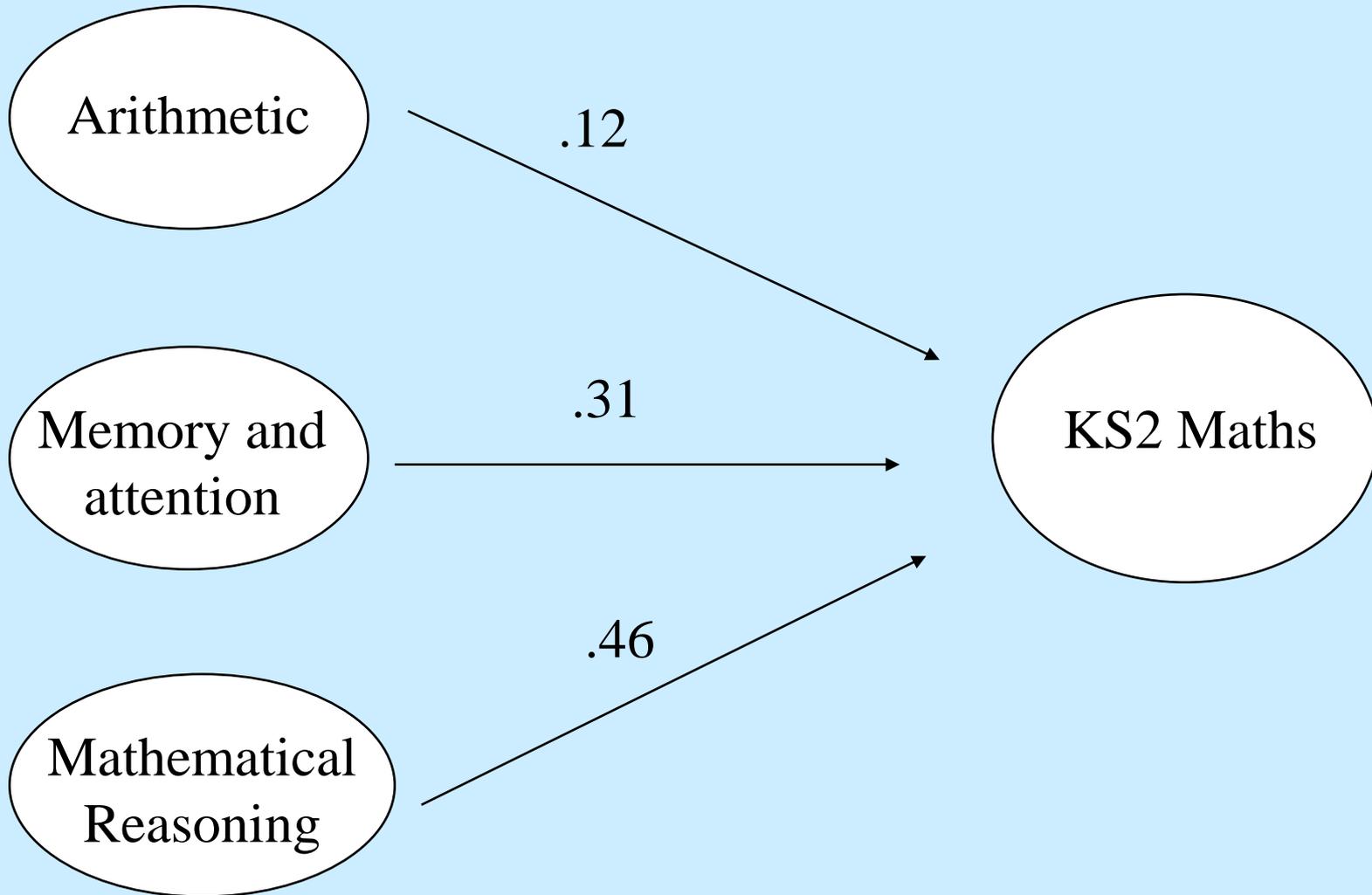
How do we know that these ideas are important for learning mathematics?

- Longitudinal studies of children's mathematical achievement
 - If something is important, it is a predictor of achievement later

Predicting hearing children's KS1 Maths



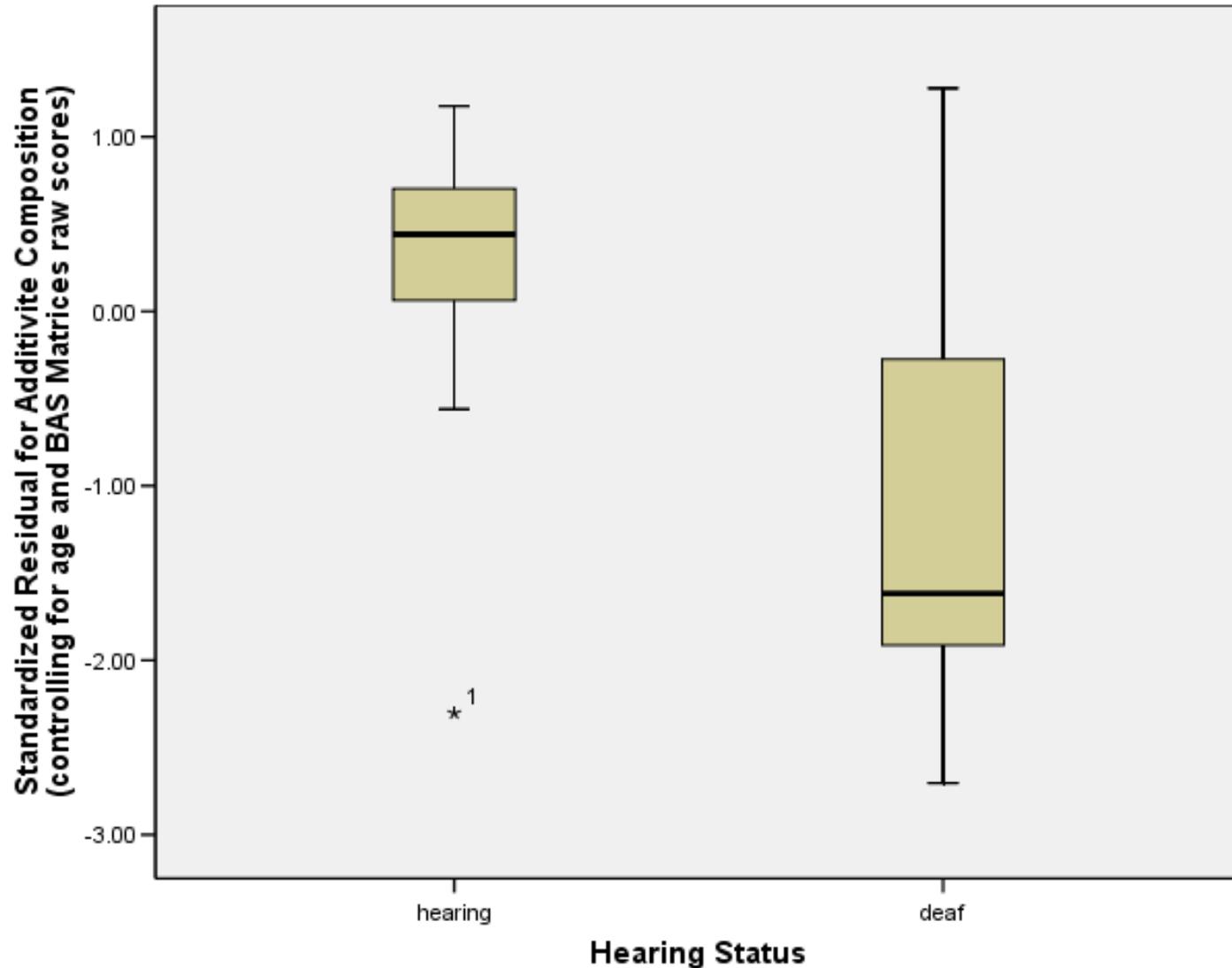
Predicting hearing children's KS2 Maths



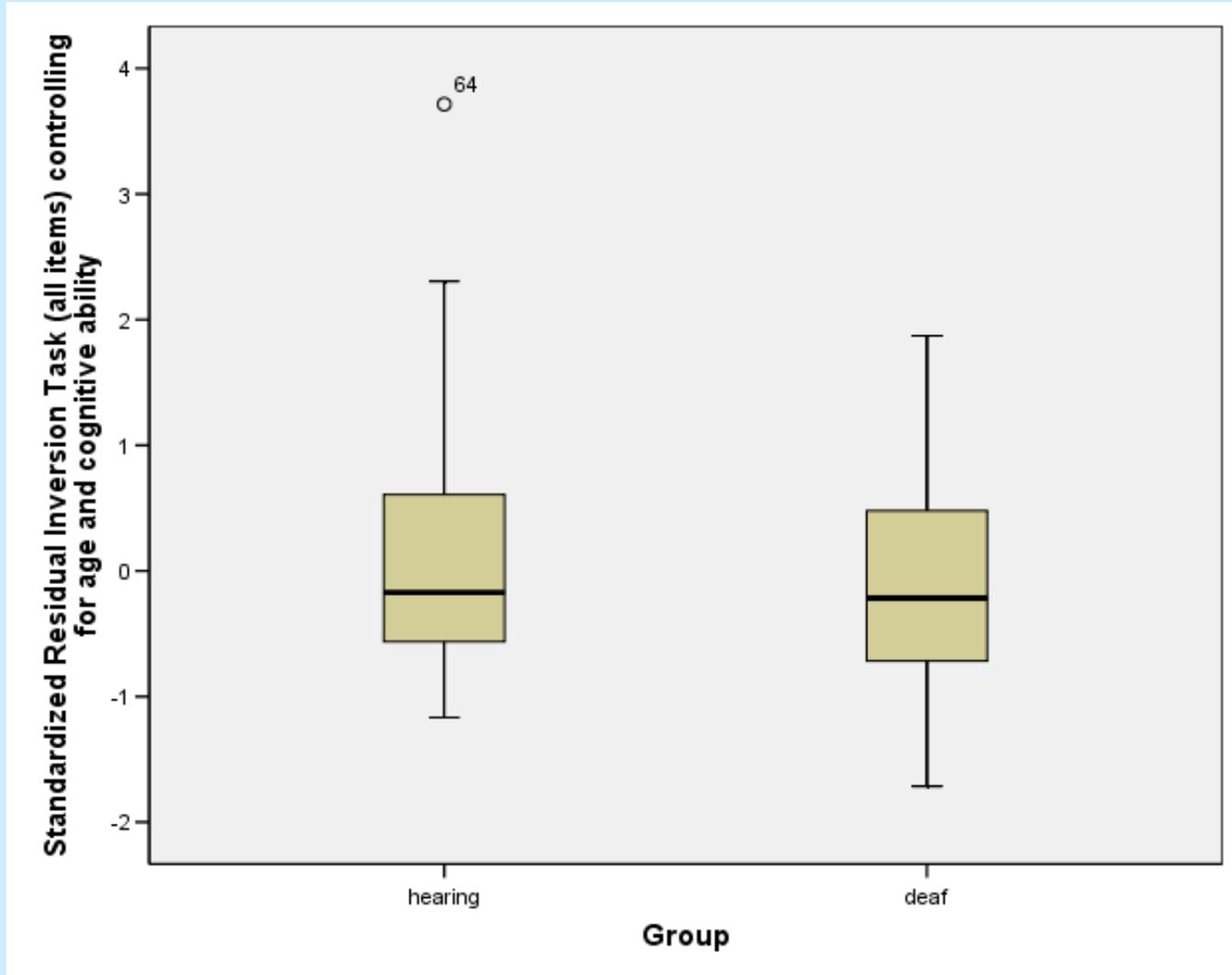
How do deaf children perform on the measures of mathematical reasoning?

- The question is always whether they are underperforming for their level of intelligence

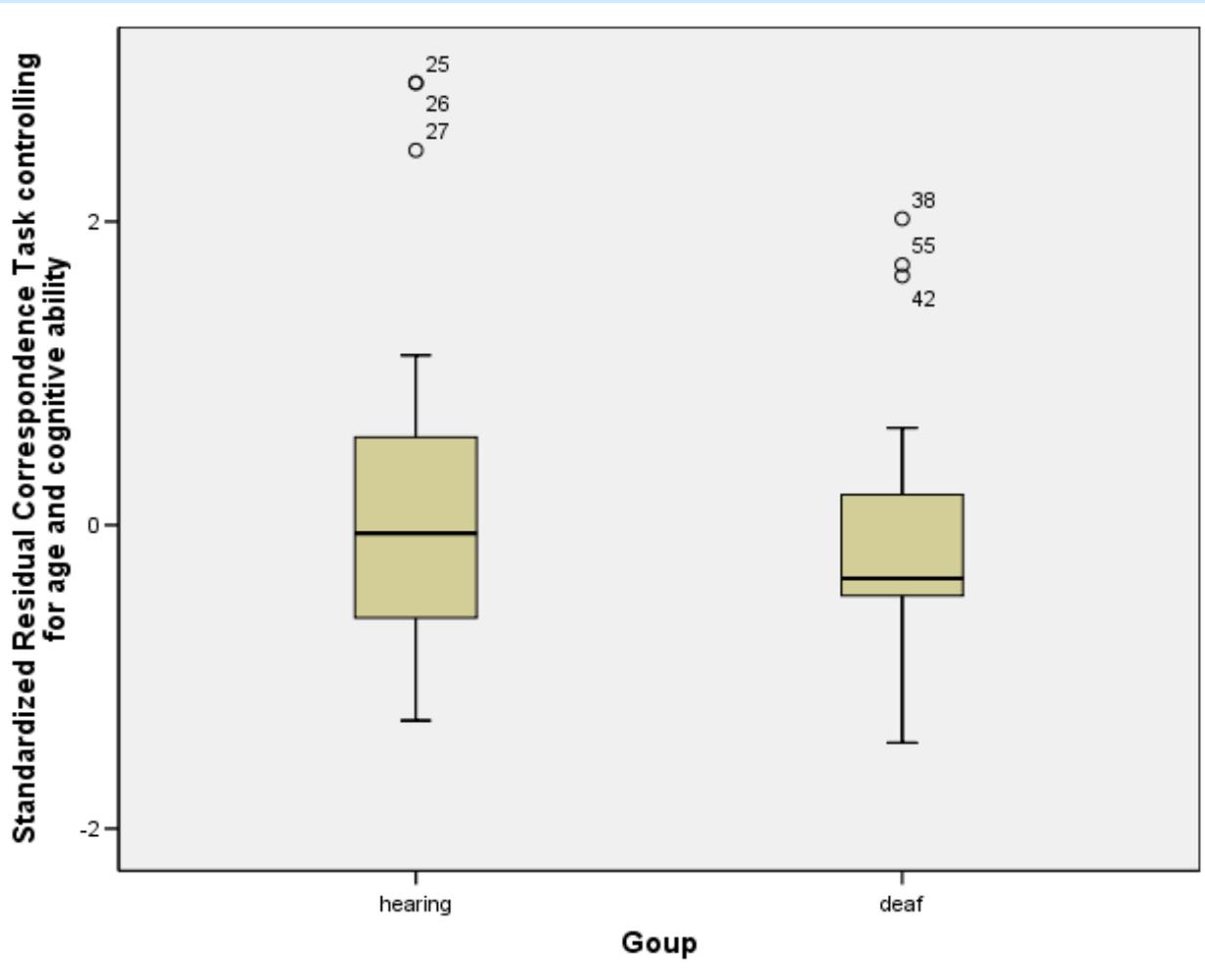
Hearing and deaf children's results in additive composition (adjusted scores)



Hearing and deaf children's results in inverse relation (adjusted scores)



Hearing and deaf children's results in correspondence tasks (adjusted scores)



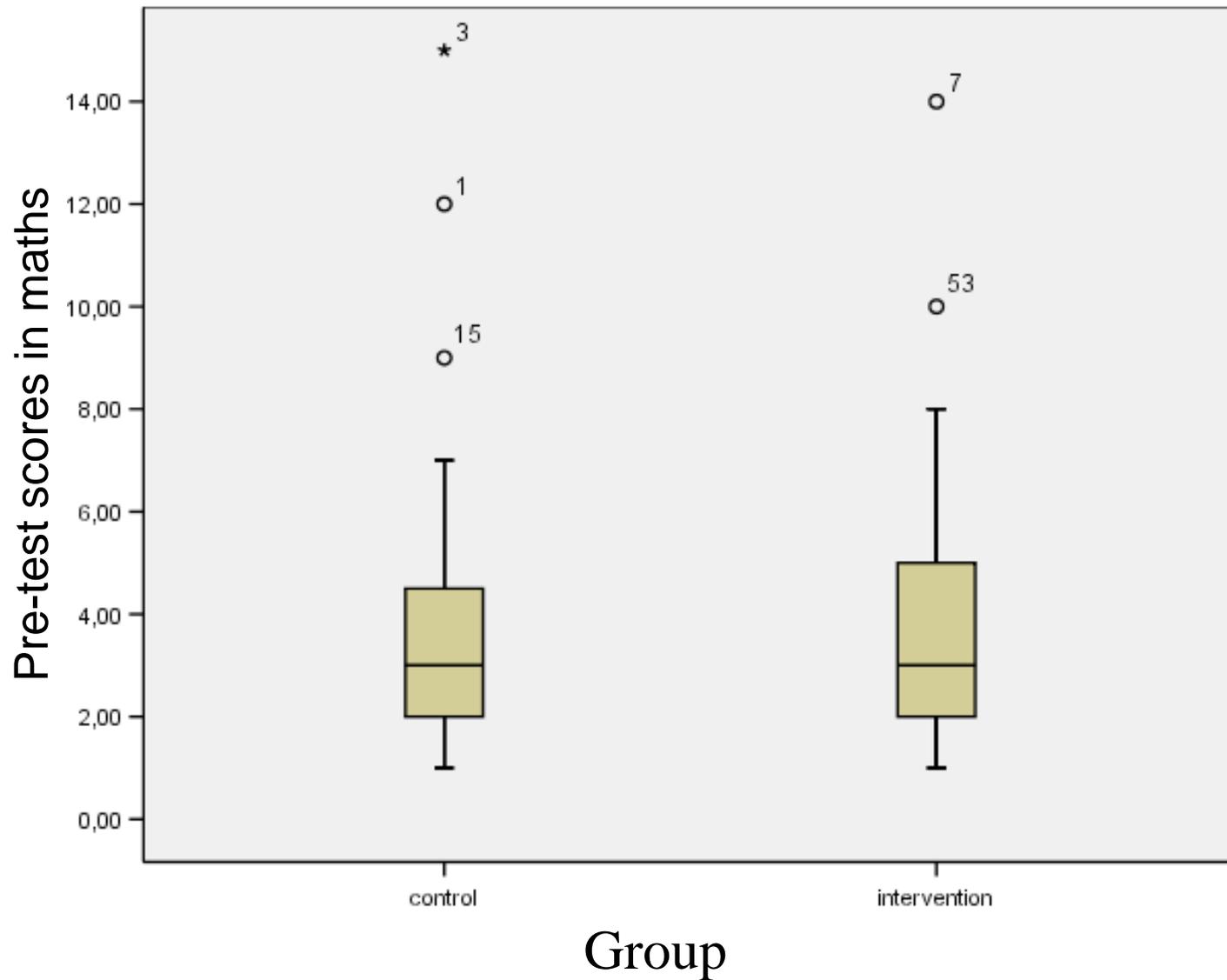
Specific teaching studies

- In each study, we tried out a method of teaching one of these concepts
 - Pre-test
 - Teaching
 - Immediate post-test
 - Delayed post-test (about 2 weeks later)
- In all three studies, the results were very positive

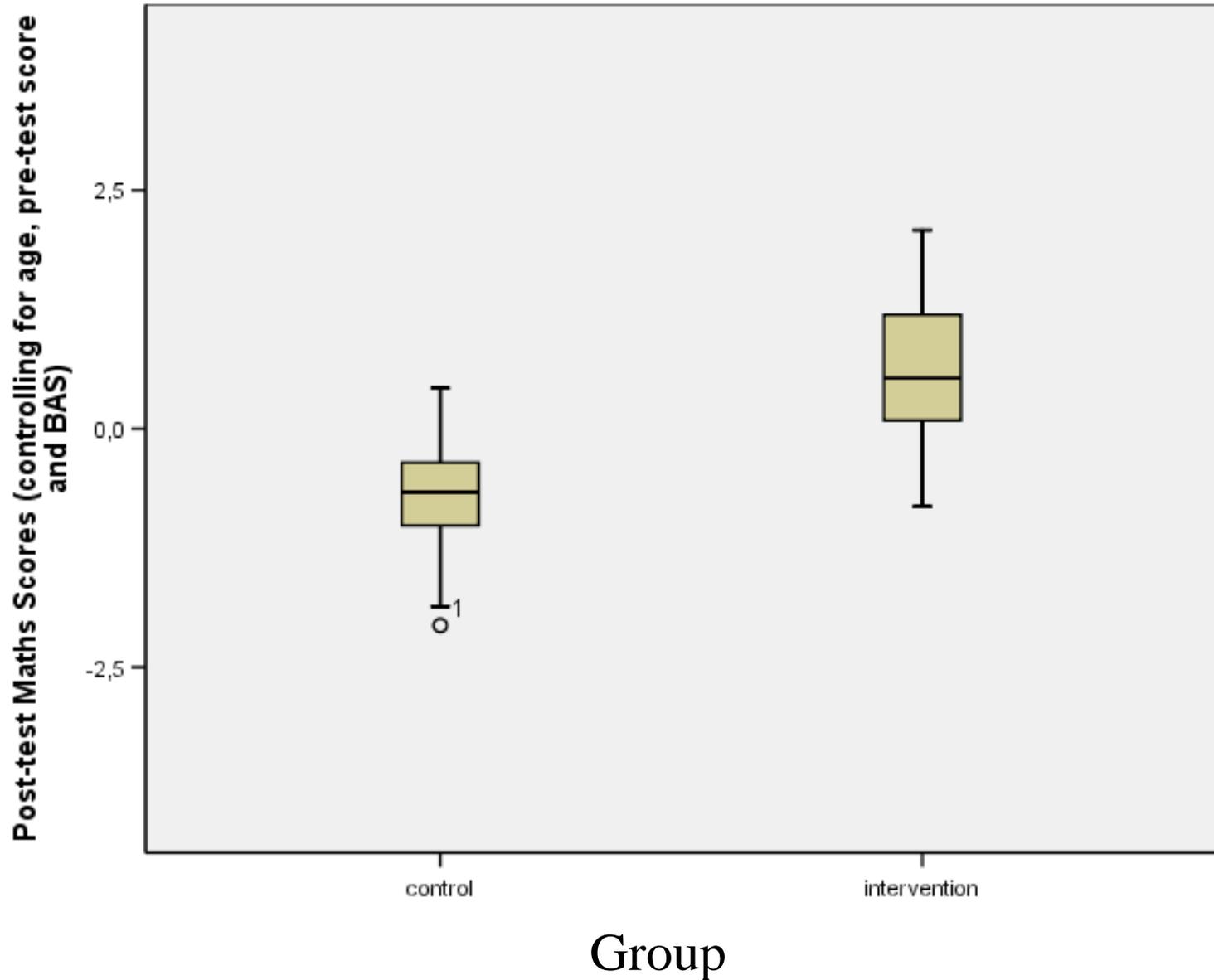
An overall programme

- In the final study, we put together an overall programme to teach all three ideas
- This programme was delivered by teachers
- We assessed the results by looking at how well the children progressed in mathematics

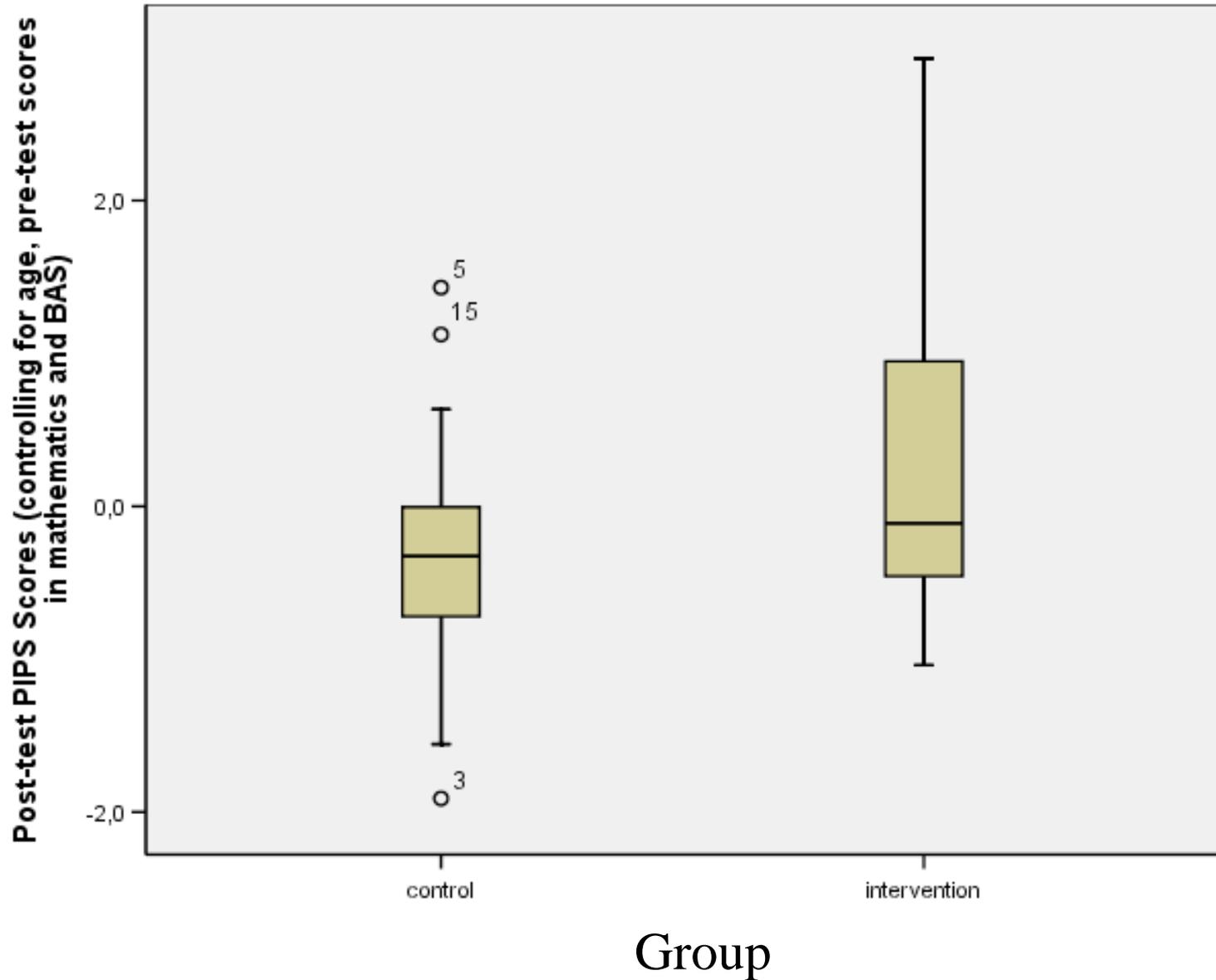
Pre-test scores



Post- test results on our mathematics assessment



Post-test results on the PIPS



Conclusion

- Research on children's reasoning has led to the identification of the logical-mathematical principles that are at the basis of children's mathematics learning
- Many deaf children show poor performance on these tasks but their understanding of these logical principles can be improved through instruction
- This instruction has a positive and significant impact on their mathematics learning