

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

National Deaf Children's Society

Department of Education



## The team

- Terezinha Nunes
- Peter Bryant
- Deborah Evans
- Diana Burman
- Daniel Bell
- Darcy Hallett
- Laura Montgomery
- Rossana Barros

# Acknowledgments

*Schools, teachers and children*

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# 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

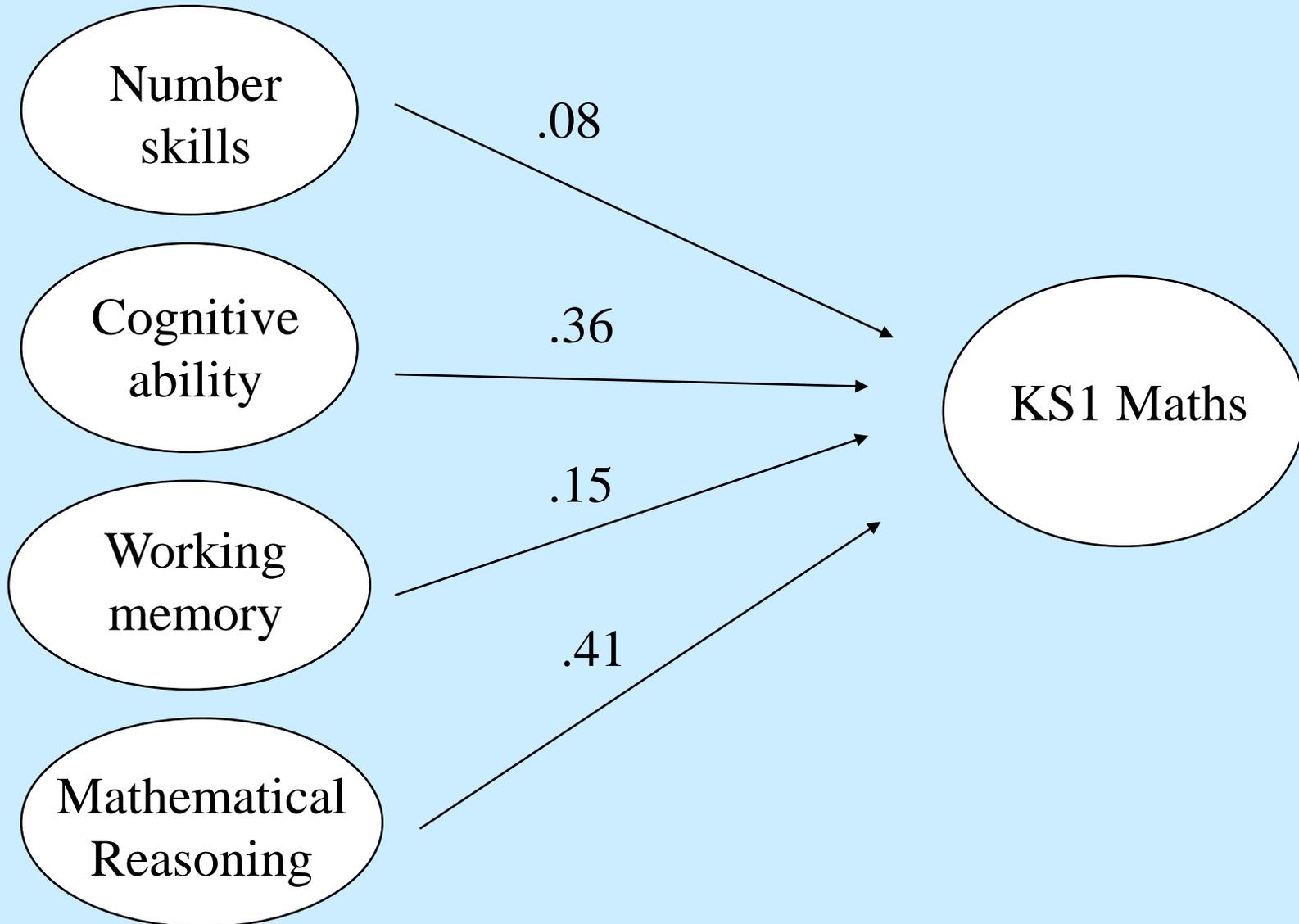
- Additive composition of number
- The inverse relation between addition and subtraction
- One-to-one and one-to-many correspondence

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

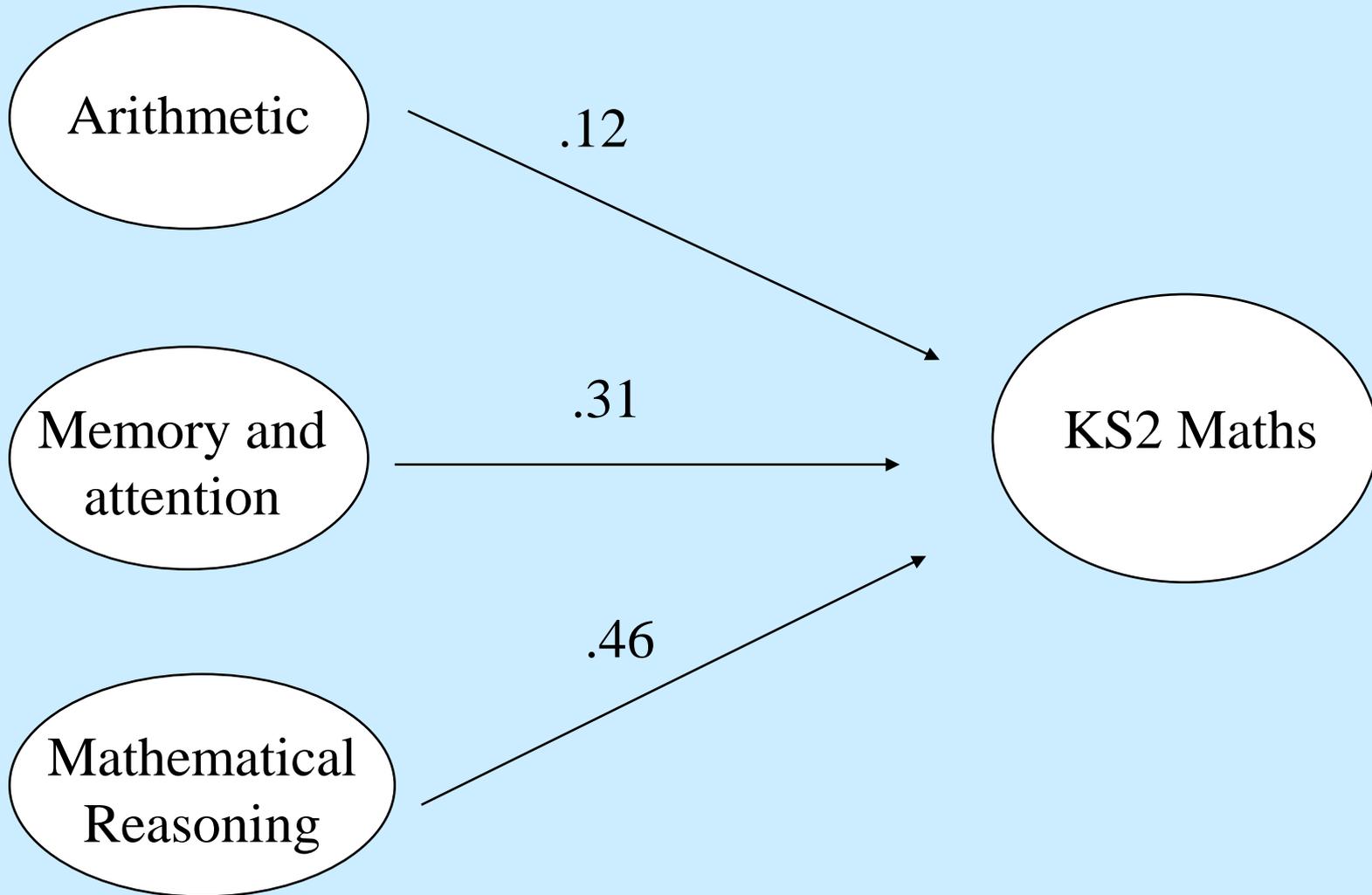
How do we know that these ideas are important for learning mathematics?

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

# Predicting hearing children's KS1 Maths



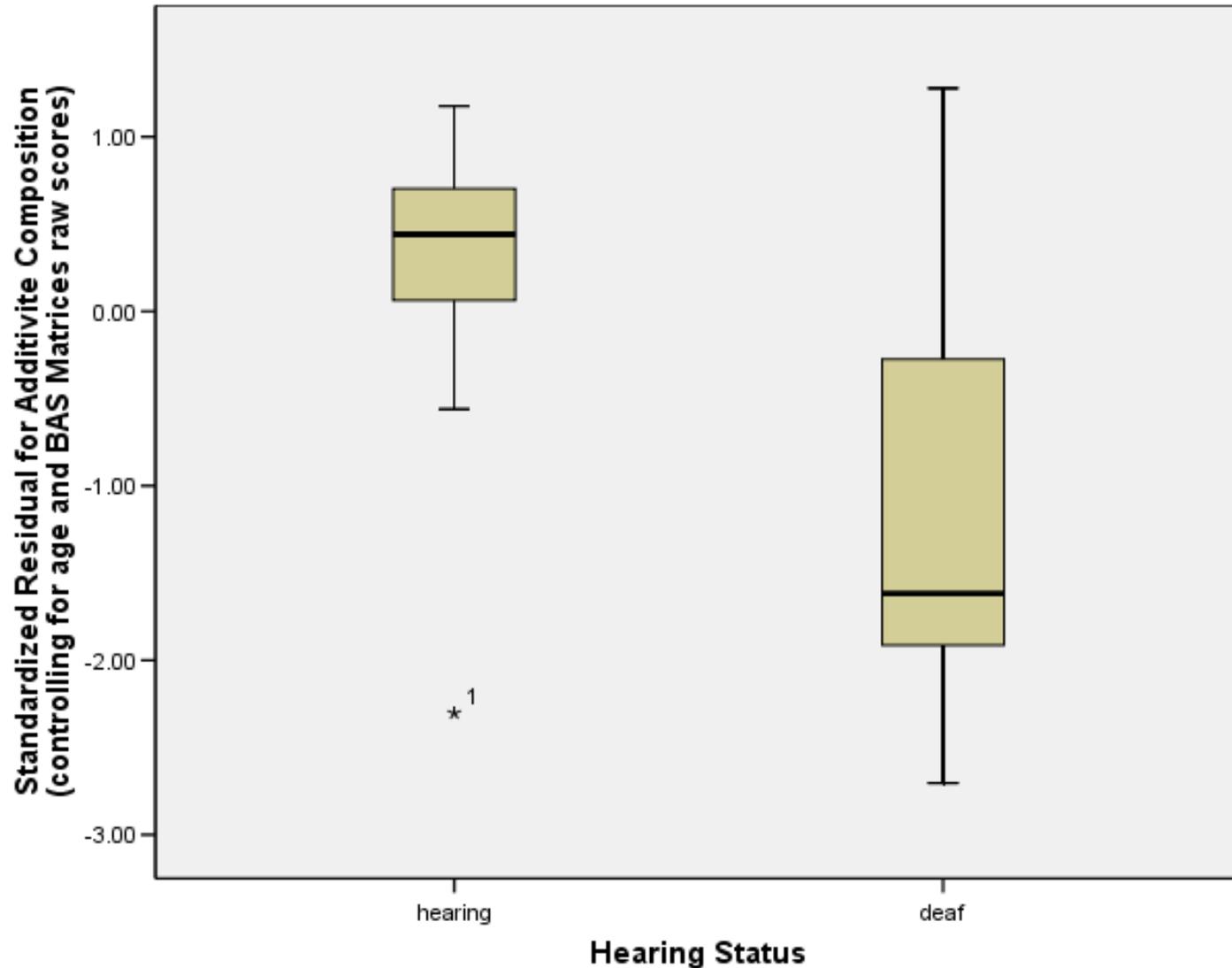
# Predicting hearing children's KS2 Maths



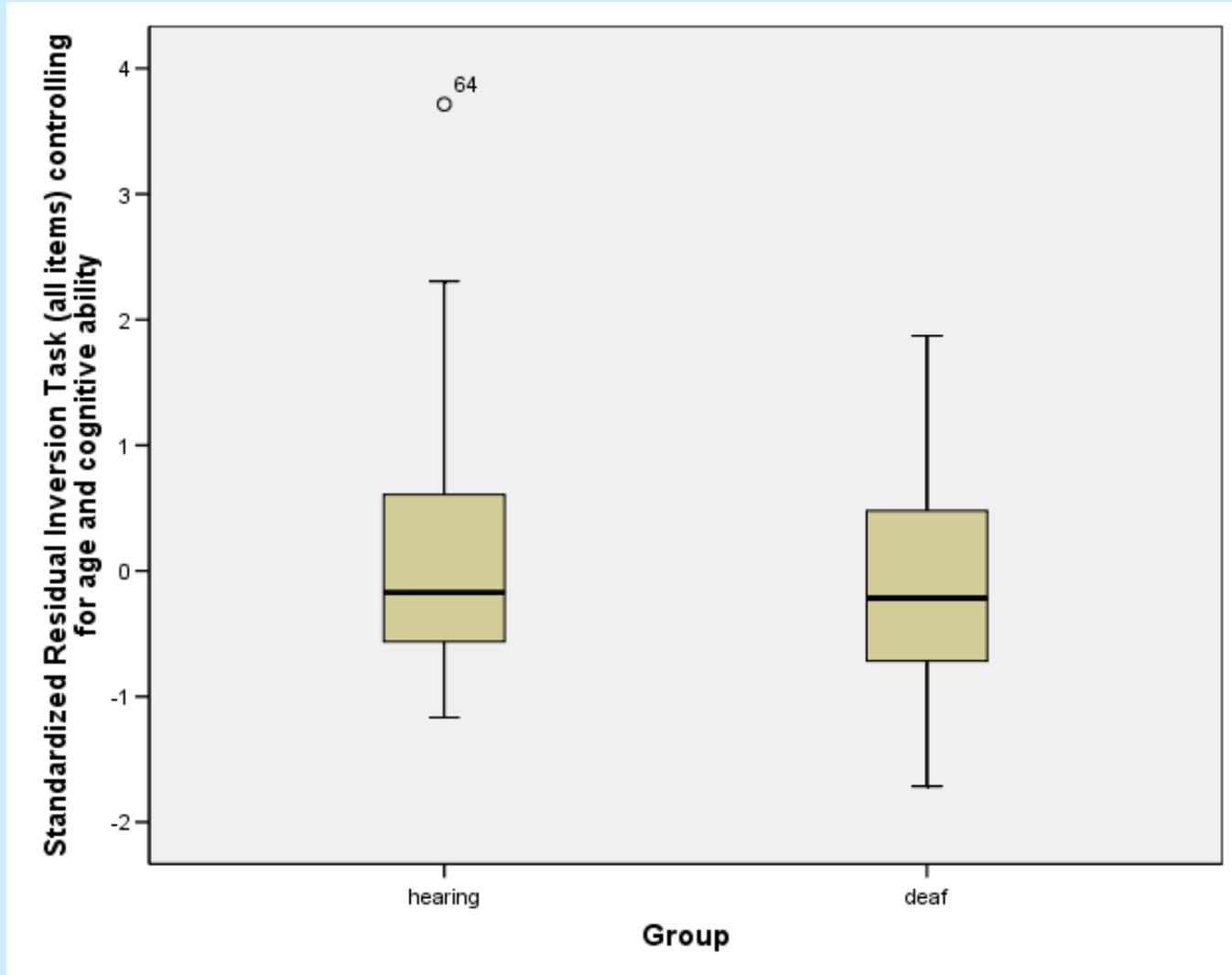
How do deaf children perform on the measures of mathematical reasoning?

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

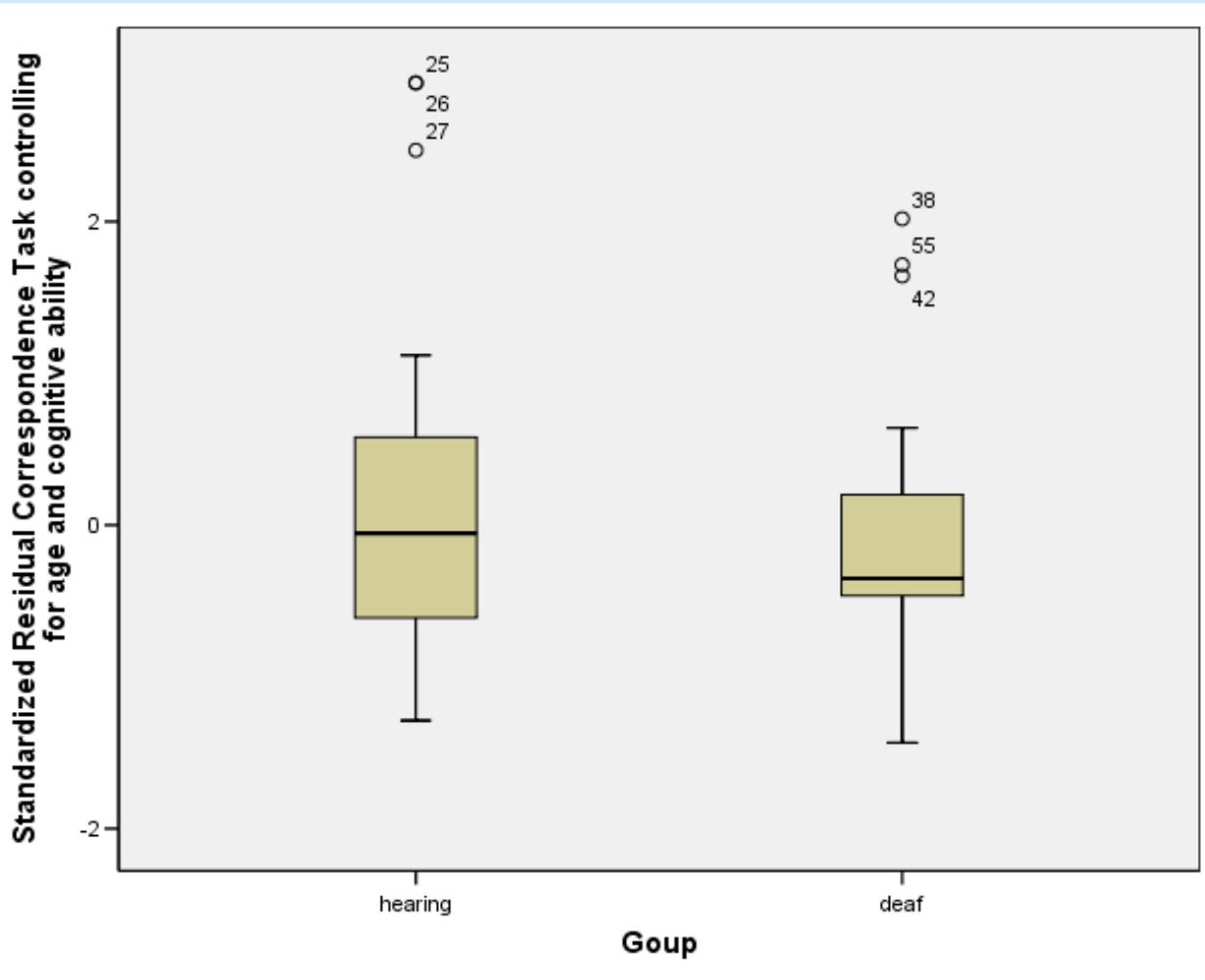
# Hearing and deaf children's results in additive composition (adjusted scores)



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



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



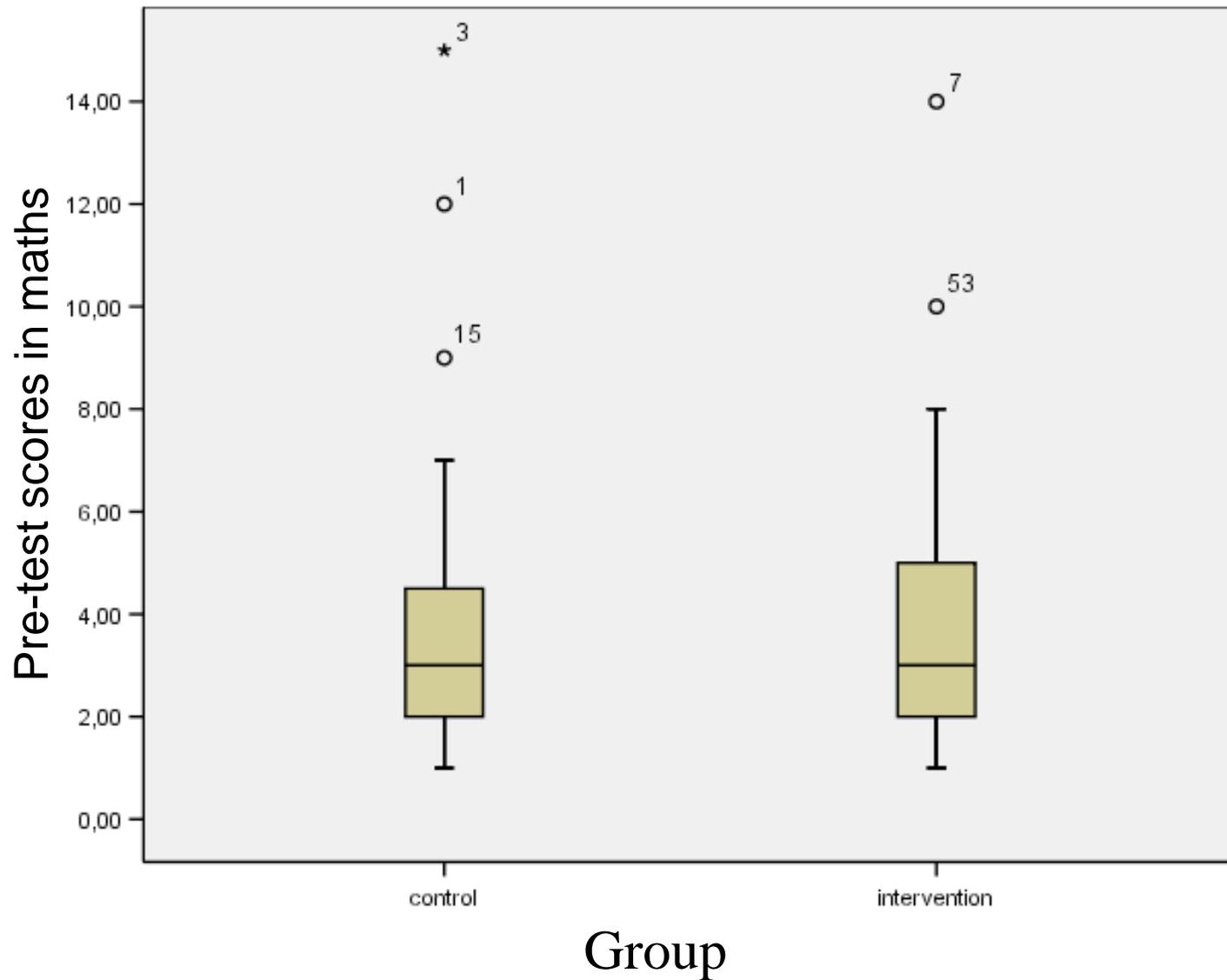
# Specific teaching studies

- 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

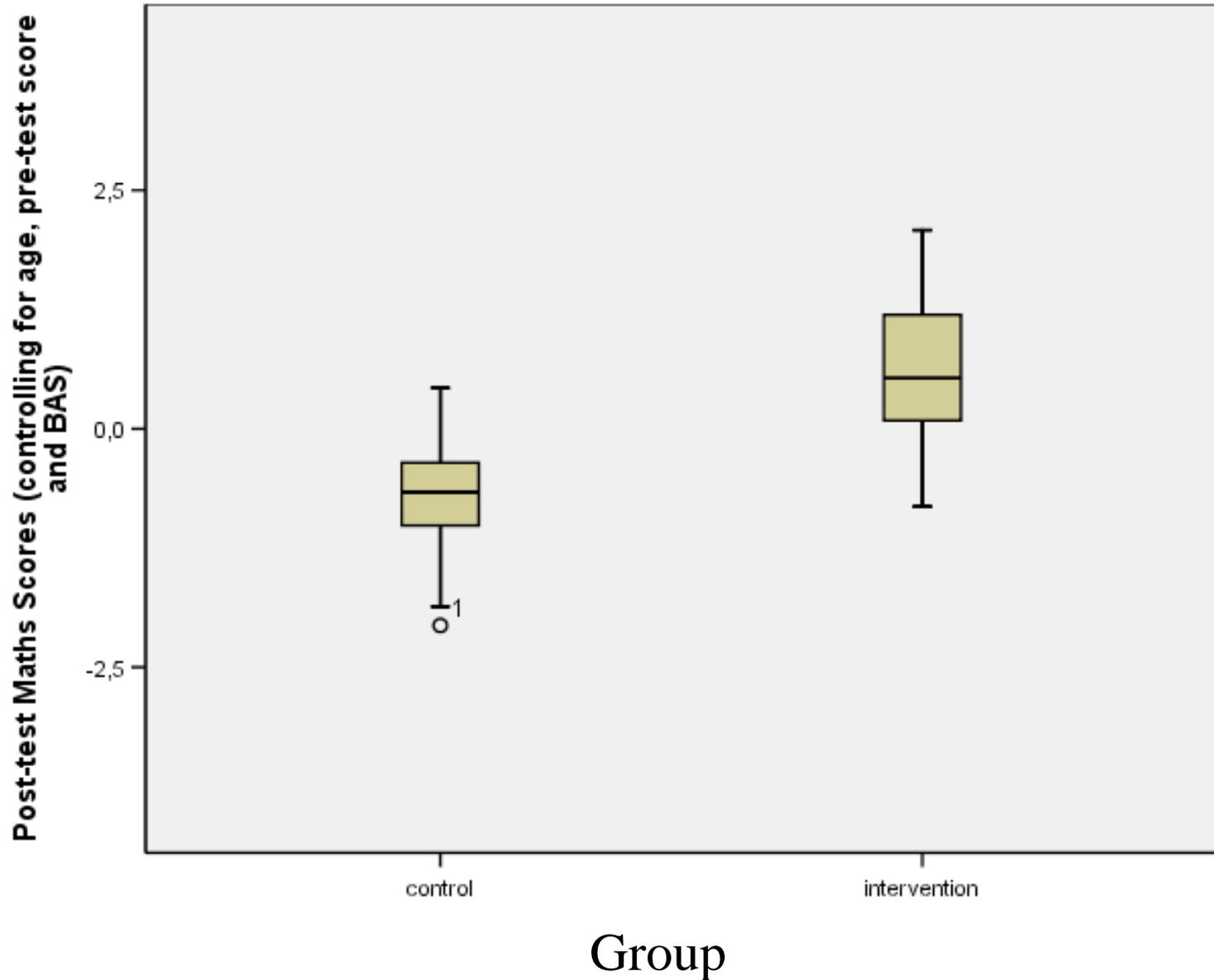
## An overall programme

- 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

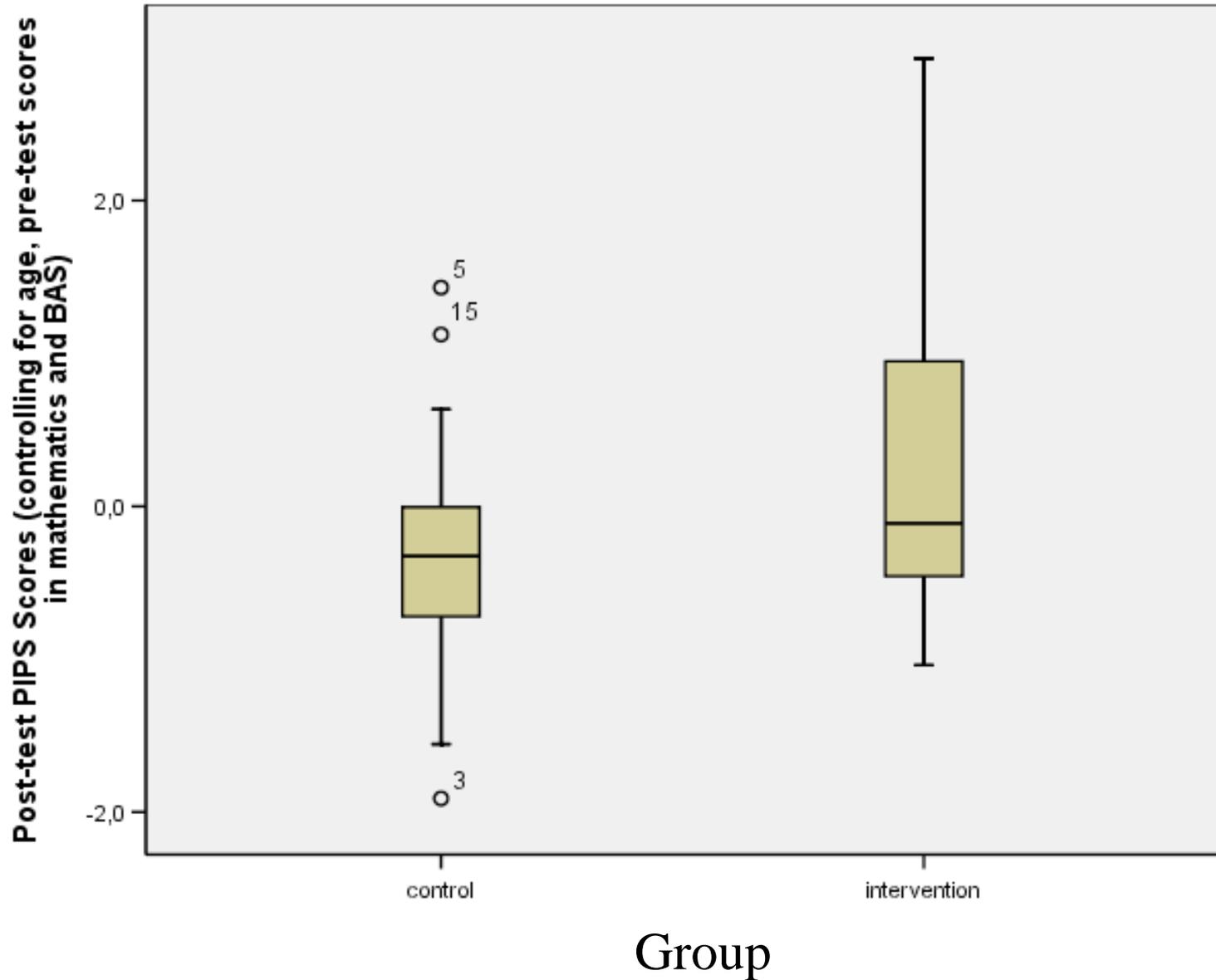
# Pre-test scores



# 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