Effects of a Number Line Intervention Using DéCaLigne Software on Number Accuracy and Arithmetic in Two Children with Mathematics Learning Disabilities

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RESULTS
Child 1 : 15 years old

Child 2 : 9 years old

PAE : Percent Absolute Error = (child’s estimate – number to be estimated) / number line scale

CONCLUSIONS
Improvement of children's number line accuracy and arithmetic performance (in complex calculation) immediately after intervention

Maintenance of children's number line accuracy and arithmetic performance one month later

Implications
Theoretical: Relationship between estimation and calculation using a number line and arithmetic skill in MLD population

Clinical: The number line intervention offers hopeful horizons to clinicians and teachers

Future Research
Findings are promising, but replications are needed to determine if intervention could be an evidence-based practice

To test the effects of different components of the current intervention (e.g., task, duration)

CONTEXT
Significant correlation between number line estimation and mathematical competence (Schneider et al., 2018)

Mathematics Learning Disabilities (MLD)
• Difficulties in accurately estimating number position on number line (Marcon & Lafay, in press)
• Difficulties in arithmetic (Geary, 1993)

AIM
To investigate the effectiveness of an intensive and individualized number line intervention on number accuracy and arithmetic skill in children with MLD

METHOD
Design: Simple phase change across subjects

Participants: 2 French children with MLD (9 and 15 years old)

Intervention on number line estimation and calculation (+ and -)
• Computerized-assisted intervention: DéCaLigne (Helloin & Lafay, 2018)
• Three 30-minute sessions per week over 4 weeks
• Explicit instruction with corrective feedback (computer and researcher)

Learning and Transfer Measures
• Estimation on number line
• Calculation with number line
• Calculation without number line

Control Measures
• Number reading
• Multiplication

Social Validity: Satisfaction questionnaire

CONCLUSIONS

Implications

Future Research