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Process Mnemonics and Mathematics Learning Disabilities

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Abstract

This study investigated the effects of process mnemonic instruction on the computational skills performance of 13- to 14-year-old students with mathematics learning disabilities (LD). Two experiments were carried out. In Experiment 1, 29 students with mathematics LD were assigned to either a process mnemonic instruction group, a demonstration-imitation instruction group (which served as a comparison instruction group), a study skills group (which served as a placebo instruction group), or a no instruction group. Those in the process mnemonic and the demonstration-imitation groups were provided with instructions in computational skills. The present author acted as instructor. Assessments of performance were undertaken at pre-instruction, immediate post-instruction, 1 week later, and 6 to 8 weeks later. The results showed that those in the process mnemonic group made significant improvements following the instructions provided. During the earlier stages of post-instruction, the magnitude of improvements they made were generally equivalent to that made by students in the demonstration-imitation group. However, in the longer term, the improvements made by the students in the process mnemonic group maintained better. No significant changes in performance were observed in the study skills and no instruction groups.

In Experiment 2, 28 students with mathematics LD were assigned to groups similar to those in Experiment 1, but without the study skills group. Two research assistants acted as instructors to control for any possible unintentional bias, and to investigate the effectiveness of the process mnemonic method when used by other instructors. Assessments of performance were undertaken at pre-instruction, immediate post-instruction, 1 week later, 4 weeks later, and 8 weeks later. The results
obtained were similar to those in Experiment 1. Furthermore, the students in the process mnemonic group generally made greater performance improvements compared to those in the demonstration-imitation group. No significant changes in performance were observed in the no instruction group.

Areas focused on in the discussion include the possible reasons why the process mnemonic method of instruction proved to be effective, the method’s potential applications in mathematics LD remedial instruction, and the implications of the findings about the mathematics LD condition.
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# Table of Contents

Introduction ............................................................................................................. 1

Chapter 1. Learning Disabilities ........................................................................... 7
   Introduction ........................................................................................................... 7
   Types of LD ........................................................................................................... 9
   Are Individuals with LD capable of learning? ....................................................... 15
   Identification of LD and the use of IQ ................................................................. 22
   Summary .............................................................................................................. 31

Chapter 2. Mathematics LD .................................................................................. 35
   Introduction ......................................................................................................... 35
   The basic skills required in mathematics ........................................................... 36
   The development of mathematical skills ............................................................ 47
   The error patterns of children with mathematics LD ......................................... 52
   Possible reasons for the deficits in mathematical skills ...................................... 56
   Interventions for mathematics LD, and their effects ......................................... 58
   Summary .............................................................................................................. 68

Chapter 3. Mnemonics ......................................................................................... 71
   Introduction ......................................................................................................... 71
   Historical background ......................................................................................... 71
   More recent reports of mnemonic feats ............................................................ 75
   Types of fact mnemonics ..................................................................................... 78
   Fact mnemonics and school learning .................................................................. 82
   Fact mnemonic instruction and students with LD ............................................. 86
   Why mnemonics work ......................................................................................... 91
   Process mnemonics: The Yodai method ............................................................ 94
   The Pool mnemonics method ............................................................................ 99
   Comments on yodai and process mnemonics ..................................................... 101
   Process mnemonic instruction and LD ............................................................ 105
   Summary .............................................................................................................. 109
Chapter 4. Rationale and Experimental Questions ............................. 113

   Introduction ............................................................................. 113
   Questions about mnemonics .................................................. 114
   Questions about mathematics LD ........................................... 118
   Questions about instructional strategies .................................. 123
   Summary .................................................................................. 126

Chapter 5. General Method ............................................................ 129

   The need for a computational skills test .................................... 129
   The rationale for the Computational Skills Test ....................... 132
   Construction of the Computational Skills Test ......................... 136
   Collection of normative data for the Computational Skills Test ... 139
   The Basic Facts Test ............................................................... 142
   The process mnemonic and DI interventions .......................... 143
   The process mnemonic instruction ......................................... 144
   The demonstration—imitation instruction ............................... 157
   The control groups ................................................................. 165
   The pilot study ......................................................................... 166
   Selection of participants for the main experiments ................. 176

Chapter 6. Experiment 1 ............................................................... 183

   Introduction ............................................................................. 183
   Method .................................................................................... 185
   Results ................................................................................... 190
   Discussion ............................................................................... 207

Chapter 7. Experiment 2 ............................................................... 217

   Introduction ............................................................................. 217
   Method .................................................................................... 220
   Results ................................................................................... 225
   Discussion ............................................................................... 240

Chapter 8. General Discussion ...................................................... 251

   Summary of findings .............................................................. 251
   Process mnemonics ............................................................... 254
   Mathematics LD ...................................................................... 276
   Wider implications .............................................................. 283
   Where to from here .............................................................. 293
   Summary ............................................................................... 298
Appendices .............................................................................. 317

Appendix A. Instruction to Students, The Basic Facts Test, and The Computational Skills Test ............... 318
Appendix B. PM Instruction in Addition, Subtraction, Multiplication, and Division.......................... 325
Appendix C. DI Instruction in Addition, Subtraction, Multiplication, and Division.......................... 357
Appendix D. Exercises Used During the Instruction Sessions.......................................................... 379
Appendix E. Introduction Letter and Consent Form........................................................................ 384
Appendix F. Participant’s Scores in the Selection Tests and the Different Stages of the Addition, Subtraction, Multiplication, and Division Phases of Experiment 1................................. 387
Appendix G. Participant’s Scores in the Selection Tests and the Different Stages of the Addition, Subtraction, Multiplication, and Division Phases of Experiment 2.......................................................... 390
Appendix H. ANOVA Summary Tables for Experiment 1 ................. 393
Appendix I. ANOVA Summary Tables for Experiment 2 ............... 396
# List of Tables

Table 1. Form 1, 2, and 3 Means, Standard Deviations, and Ranges of Scores on the Computational Skills Test .......... 140

Table 2. Means and Standard Deviations of Scores in Addition, Subtraction, Multiplication, and Division for Form 1, 2 and 3 Students ................................................................. 141

Table 3. Mean Test Scores of the Student Participants in Each of the Four Groups, During the Addition and Subtraction Phase, Experiment 1 .................................................................................. 186

Table 4. Mean Test Scores of the Student Participants in Each of the Four Groups, During the Multiplication and Division Phase, Experiment 1 .............................................................................. 187

Table 5. Schedules for Instruction and Assessment of the Four Groups in Experiment 1 ................................................................................................................................. 189

Table 6. Means of the Four Groups in Addition at Different Stages of Experiment 1 ................................................................................................................................. 192

Table 7. Means of the Four Groups in Subtraction at Different Stages of Experiment 1 ................................................................................................................................. 195

Table 8. Means of the Four Groups in Multiplication at Different Stages of Experiment 1 ................................................................................................................................. 201

Table 9. Means of the Four Groups in Division at Different Stages of Experiment 1 ................................................................................................................................. 205

Table 10. Means Scores in the Selection Tests for the Three Instructional Groups, Experiment 2 ................................................................. 222

Table 11. Schedules for Instruction and Assessment of the Three Groups in Experiment 2 ................................................................. 225
Table 12. Means of the Three Groups in Addition at Different Stages of Experiment 2 ................................................................. 228

Table 13. Means of the Three Groups in Subtraction at Different Stages of Experiment 2 .................................................................. 231

Table 14. Means of the Three Groups in Multiplication at Different Stages of Experiment 2 ................................................................. 236

Table 15. Means of the Three Groups in Division at Different Stages of Experiment 2 ................................................................. 238
List of Figures

Figure 1. Types of learning disabilities ........................................ 16

Figure 2. Student participants’ progress in addition and subtraction across baseline, intervention, maintenance, and follow-up conditions ........................................ 171

Figure 3. Student participants’ progress in multiplication and division across baseline, intervention, maintenance, and follow-up conditions ........................................ 172

Figure 4. Addition mean scores of the groups across the different stages of Experiment 1 ....................................................... 191

Figure 5. Subtraction mean scores of the groups across the different stages of Experiment 1 ....................................................... 191

Figure 6. Multiplication mean scores of the groups across the different stages of Experiment 1 ....................................................... 198

Figure 7. Division mean scores of the groups across the different stages of Experiment 1 ....................................................... 198

Figure 8. Addition mean scores of the groups across the different stages of Experiment 2 ....................................................... 227

Figure 9. Subtraction mean scores of the groups across the different stages of Experiment 2 ....................................................... 227

Figure 10. Multiplication mean scores of the groups across the different stages of Experiment 2 ....................................................... 234

Figure 11. Division mean scores of the groups across the different stages of Experiment 2 ....................................................... 234