

Contents

<i>List of Tables</i>	<i>xv</i>
<i>List of Figures</i>	<i>xix</i>
<i>Abbreviations for Education Systems</i>	<i>xxv</i>
1. Origins of the Second International Mathematics Study	
1.1 Introduction	1
1.2 Why a Second International Mathematics Study?	2
1.3 Conceptualization of the Study: Three Aspects of the Curriculum	5
1.4 Target Populations	10
1.5 Instrumentation	11
1.6 SIMS Management	12
2. The International Grid and Item Pool	
2.1 A Framework for Describing the Curriculum	15
2.2 Behavioral Levels	19
2.3 The Content List	23
2.4 The International Grid: Population A	25
2.5 The International Grid: Population B	32
2.6 The International Item Pool	44
2.7 Summary	53
3. National Characteristics of Educational Systems	
3.1 Population A	54
3.2 Target Populations and Age and Grade Cohorts	56
3.3 Placement of Population A Within School Systems	57
3.4 Class Size (Population A)	59
3.5 The Curricular Organization of Population A	60
3.6 Population B	63
3.7 Population B in the Context of Age and Grade Cohorts	66
3.8 The Curricular Organization of Population B	67
3.9 Class Size (Population B)	71

3.10	Curriculum Control	71
3.11	Curricular Diversity: A Typology	76
3.12	Summary	78
4.	The Content of the Intended Curriculum	
4.1	Notation and Terminology	79
4.2	Intended Content Coverage: Population A	83
4.3	Curricular Clusters: Population A	93
4.4	Intended Content Coverage: Population B	95
4.5	Content Clusters: Population B	108
4.6	Summary	110
5.	The Content of the Implemented Mathematics Curriculum	
5.1	Introduction	111
5.2	Measurement of Content Coverage: The Validity of OTL	113
5.2.1	Intended Coverage and Implemented Coverage	113
5.2.2	The Implemented Curriculum and Achievement	116
5.3	Dimensions of the Implemented Curriculum	120
5.4	Population A: Patterns of Content Coverage	123
5.4.1	Arithmetic: Between-system Patterns of Coverage	123
5.4.2	Arithmetic: Within-system Patterns of Coverage	124
5.4.3	Measurement: Between-system Patterns of Coverage	125
5.4.4	Measurement: Within-system Patterns of Coverage	125
5.4.5	Algebra: Between-system Patterns of Coverage	127
5.4.6	Algebra: Within-system Patterns of Coverage	129
5.4.7	Geometry: Between-system Patterns of Coverage	131
5.4.8	Geometry: Within-system Patterns of Coverage	132
5.4.9	Statistics: Between-system Patterns of Coverage	134
5.4.10	Statistics: Within-system Patterns of Coverage	135
5.5	Population A: Between-system Variation in Coverage	136
5.6	Population A: Patterns of Within-system Variation	139
5.7	Population B; Patterns of Content Coverage	147
5.7.1	Algebra: Between- and Within-system Patterns of Coverage	147
5.7.2	Elementary Functions and Calculus: Between-system Patterns of Coverage	148
5.7.3	Elementary Functions and Calculus: Within-system Patterns of Coverage	149
5.7.4	Number Systems: Between-system Patterns of Coverage	149
5.7.5	Number Systems: Within-system Patterns of Coverage	151
5.7.6	Geometry: Between-system Patterns of Coverage	153
5.7.7	Geometry: Within-system Patterns of Coverage	154
5.7.8	Sets and Relations, Probability and Statistics, and Finite Mathematics	156
5.8	Population B: Between-system Variation in Coverage	160
5.9	Population B: Patterns of Within-system Variation	160
5.10	Summary	165

6. Outputs and Outcomes of Mathematics Education

6.1	Introduction	167
6.2	Yield	168
6.3	Yield of Mathematics Education—Indicators	171
6.4	The Context of Yield	177
6.5	The Contexts of Population B Mathematics	178
6.6	Gender-bias in Advanced Mathematics	187
6.7	Yield and Pace	191
6.8	Summary	202

7. Summary and Implications

7.1	The Context of the Curriculum	203
7.2	The Content of the Curriculum: Population A	205
	7.2.1 Commonality in the Population A Curriculum	205
	7.2.2 Curricular Diversity – Population A	207
	7.2.3 Correspondence between Intended and Implemented Curriculum: Population A	209
7.3	The Content of the Curriculum: Population B	211
	7.3.1 Commonality in the Population B Curriculum	211
	7.3.2 Curricular Diversity – Population B	212
	7.3.3 Correspondence between Intended and Implemented Curriculum: Population B	214
7.4	Yield	214
	7.4.1 Illustrative Yield Data	216
7.5	Mathematics for All	218
7.6	Postscript	221

<i>References</i>	224
-------------------	-----

<i>Appendix I.</i> Participating Systems	230
--	-----

<i>Appendix II.</i> Timeline for the Second International Mathematics Study	232
---	-----

<i>Index</i>	233
--------------	-----