Foreword	xiii
Introduction: to the English Translation	XV
Introduction: translated from the Japanese version	XXV
Chapter 1: Japanese Lesson Study in Mathematics	
Section 1: Japanese Education and Lesson Study: An Overview 1.1 "How is Lesson Study Implemented?" Takuya Baba <i>Hiroshima University</i>	2
Section 2: A Brief History of Mathematics Lesson Study in Japan 2.1 "Where did Lesson Study Begin, and How Far Has It Come?" Masami Isoda University of Tsukuba	n 8

Section 3: Official In-Service Teacher Training System	
3.1 How is In-Service Teacher Training Conducted in Japan?	16
Kazuyoshi Okubo	
Hokkaido University of Education	
Section 4: Mathematics Curriculum and Way of	
Implementation	
4.1 How Has Mathematics Education Changed in Japan? Eizo Nagasaki	22
National Institute for Educational Policy Research of Japan	
4.2 How Have the Goals of the Mathematics Curriculum Changed?	26
Eizo Nagasaki	
National Institute for Educational Policy Research of Japan	
4.3 How are Curriculum Standards Improved and Implemented?	30
Yutaka Ohara	
Naruto University of Education	
4.4 How is Each School's Mathematics Curriculum Formulated and	26
Implemented?	36
Shigeo Yoshikawa Ministry of Education, Culture, Sports, Science an	1
Ministry of Education, Culture, Sports, Science an Technology, Japan	a
4.5 Teaching and Assessment Based on Teaching Guides	42
Masao Tachibana	72
Masao Tachoana Morioka City Board of Education (previous position: Ministr	п,
of Education, Culture, Sports, Science and Technology, Japan	
4.6 Textbooks and Teaching Guides	
Takeshi Miyakawa	
University of Tsukuba	
4.7 What Kinds of Teaching Materials and Aids are Used in Japan?	52
Hiroko Tsuji	
Hokkaido University of Education	
4.8 What do Teachers and Teacher Trainees Think About Lesson	
Study?	56
Tadayuki Kishimoto	
Toyama University	
Section 5: Comparisons of Features of Past Internationa	ıl
Comparative Studies	
5.1 Why Have Japanese Lessons Paid Attracted Attention and	
What are its Features?	60
Hanako Senuma	
National Institute for Educational Policy Research of Japan	

Section 6: Understanding Japanese Mathematics	
Lessons	
6.1 How do Japanese Teachers Explain and Structuralize Their	
Lessons?	64
Yoshinori Shimizu	
University of Tsukuba	
6.2 How do Japanese Teachers Evaluate Their Students in Their	
Lessons?	68
Hiroyuki Ninomiya	
Ehime University	

vii

Chapter 2: Methods and Types of Study Lessons

Section 1: Preparation for Lessons

1.1 Annual Teaching Plan as a Plan for Nurturing Students	:
How should Annual Teaching Plans be Created to Impart Useful	
Skills and Creative Ways of Thinking?	74
Yasuhiro Hosomizu	
Attached Elementary School of University of Tsukuba	
1.2 Teaching Plans in which Questions Continuously Emerge	:
How to develop lessons in which students says, "Wow, it is really	
easy to calculate this way!"	78
Yasuhiro Hosomizu	
Attached Elementary School of University of Tsukuba	
1.3 Developing Creative Teaching Strategies Aimed at Imparting	
Diverse Ways of Thinking and Fostering Enjoyment of	
Learning	86
Kozo Tsubota	
Attached Elementary School of University of Tsukuba	
Section 2: Unique Japanese Lesson Development	
– Models and Examples	
2.1 The Problem-Solving Oriented Teaching Methods and Examples	92
Satoshi Natsusaka	
Attached Elementary School of University of Tsukuba	
2.2 Discussion-Oriented Teaching Methods and Examples:	
Discussion-Oriented Lessons for Improving Students'	
	02
Hiroshi Tanaka	
Attached Elementary School of University of Tsukuba	

2.3 Problem-Discovery Oriented Teaching Methods and Examples: What are Problem-Discovery Oriented Lessons? Yoshikazu Yamamoto <i>Attached Elementary School of University of Tsukuba</i>	112
Chapter 3: Trends of Research Topics in Japa Society of Mathematical Education	an
Section 1: Lesson Study in Elementary Schools 1.1 What are the Features of Lesson Study Projects Conducted in Elementary School Mathematics Departments? Tadayuki Kishimoto Tayayuki Kishimoto	124
Toyama University Kozo Tsubota Attached Elementary School of University of Tsukuba 1.2 How Have the Goals of Mathematics Education Changed? Tadayuki Kishimoto Toyama University	126
Kozo Tsubota <i>Attached Elementary School of University of Tsukuba</i> 1.3 How Have Research Trends at the Japan Society of Mathematical Education National Conference Changed? Tadayuki Kishimoto <i>Toyama University</i> Kozo Tsubota <i>Attached Elementary School of University of Tsukuba</i>	128
Section 2: Lesson Study in Junior High Schools 2.1 The Current Status of Lesson Study in Junior High Schools Yutaka Oneda Attached Elementary School of University of Tsukuba	130
2.2 Changes in Curriculum and Class Hours in the New National Course of Study Yutaka Oneda	132
Attached Elementary School of University of Tsukuba 2.3 Research Trends at the Japan Society of Mathematical Education National Conference Yutaka Oneda Attached Elementary School of University of Tsukuba	134

viii

Contents	ix
Section 3: Lesson Study in High Schools	
3.1 Current Status of Lesson Study in High Schools	136
Kazuhiko Murooka	
Ochanomizu University Senior High School	
3.2 Changes in the High School Curriculum Based on the National	
Course of Study	140
Kazuhiko Murooka	
Ochanomizu University Senior High School	
3.3 Research Trends in the High School at the Japan Society of	
Mathematical Education (JSME) National Conference	144
Kazuhiko Murooka	
Ochanomizu University Senior High School	

Chapter 4: Diversity and Variety of Lesson Study

Case 1: Lesson Study as In-school Training Hidenori Tanaka Makomanai Elementary School	150
Case 2: A Study of the Class in Training Course for Teachers with Ten Years of Experiences Takaharu Komiya <i>Ibaraki Teacher Training Center</i>	154
Case 3: Ties between a University Faculty of Education and Its Attached Schools Hideki Iwasaki <i>Hiroshima University</i>	156
Case 4: Curriculum Development at Attached Schools Yutaka Oneda Attached Elementary School of University of Tsukuba	162
Case 5: Lesson Study: A Partnership among Education Sites, Boards of Education, and Universities Kazuaki Shimada <i>Chiba University</i>	166
Case 6: Lesson Study Associations Izumi Nishitani Gunma University	174

Case 7: Lesson Study in Teacher Education Programs: How do Studer Become Teachers That Implement Lesson Study? Masami Isoda University of Tsukuba	nts 176
Case 8: Lesson Study Project Supported by Ministry of Education C Sports, Science and Technology: How to Effectively Use Computers in Class Yasuyuki Iijima <i>Aichi University of Education</i>	Culture, 180
Chapter 5: International Cooperative Projects	
Case 1: International Comparative Classroom Research Project Yoshinori Shimizu University of Tsukuba	184
Case 2: Lesson Study in Thailand Maitree Inprasitha Khon Kaen University	188
Case 3: Lesson Study in North America Akihiko Takahashi DePaul University	194
Case 4: Lesson Study for the Effective Use of Open-Ended Problems Yoshihiko Hashimoto Yokohama National University	198
Case 5: Lesson Study in Philippines Shizumi Shimizu University of Tsukuba	202
Case 6: Lesson Study in Cambodia Kenji Odani Aichi University of Education	206
Case 7: Lesson Study in Laos Noboru Saito Naruto University of Education	210

Contents	xi
Case 8: Lesson Study in Indonesia Kiyoshi Koseki Gifu Shotoku Gakuen University	214
Case 9: Lesson Study in Egypt Kazuyoshi Okubo Hokkaido University of Education	216
Case10: Lesson Study in Kenya Takuya Baba Hiroshima University	218
Case11: Lesson Study in Ghana Minoru Yoshida Shinshu University	222
Case12: Lesson Study in South Africa Katsunori Hattori Naruto University of Education	226
Case13: Lesson Study in Honduras Eiichi Kimura Tokyo metropolitan Hakuo high school	230

Appendices

Appendix 1: "Exploring the Unfolding of a Cylinder":	
A 6th Grade Mathematics Lesson	236
Abraham Arcavi	
Department of Science Teaching, Weizmann Institute	of
Science, Israel	
Appendix 2: "New Ways of Calculation":	
A 3rd Grade Mathematics Lesson	240
Abraham Arcavi	
Department of Science Teaching, Weizmann Institute	of

Appendix 3: "I Understand What You Want to Say!":	
A 5th Grade Mathematics Lesson	244
Abraham Arcavi	
Department of Science Teaching Weizmann Institute of Israel	^c Science,

 Appendix 4: "How Many Blocks?":
 248

 A 1st Grade Mathematics Lesson
 248

 Aida Yap
 National Institute for Science and Mathematics Education

 Development, Philippines
 Development

xii