## **Contents**

**List of Contributors** 

1 The Development of a Learning Strategies Curriculum  DONALD DANSEREAU  Introduction Learning Strategies: A Brief Review and Synthesis Manipulation of Specific Strategy Components Previously Developed Programs for Enhancing Learning Strategies Preliminary Work on an Empirically Based Learning-Strategy Training Program Efforts to Expand and Improve the Learning-Strategy Training Program Concluding Comments References  26  Elaboration Skills as a Learning Strategy CLAIRE E. WEINSTEIN  Verbal Learning Tradition Empirical Mnemonic Research Elaboration Skills Training The Cognitive Learning Strategies Project The Future References  10  11  12  13  14  15  16  17  18  18  19  19  10  10  11  12  14  15  15  16  17  18  18  18  18  18  18  18  18  18	Preface		хi	
Introduction Learning Strategies: A Brief Review and Synthesis Manipulation of Specific Strategy Components Previously Developed Programs for Enhancing Learning Strategies Preliminary Work on an Empirically Based Learning-Strategy Training Program Efforts to Expand and Improve the Learning-Strategy Training Program Concluding Comments References  26  2 Elaboration Skills as a Learning Strategy CLAIRE E. WEINSTEIN  Verbal Learning Tradition Empirical Mnemonic Research Elaboration Skills Training The Cognitive Learning Strategies Project The Future  Performance  1 1 1 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	1	The Development of a Learning Strategies Curriculum	1	
Learning Strategies: A Brief Review and Synthesis  Manipulation of Specific Strategy Components  Previously Developed Programs for Enhancing Learning Strategies  Preliminary Work on an Empirically Based Learning-Strategy Training Program  Efforts to Expand and Improve the Learning-Strategy Training Program  Concluding Comments  References  26  2 Elaboration Skills as a Learning Strategy  CLAIRE E. WEINSTEIN  Verbal Learning Tradition  Empirical Mnemonic Research  Elaboration Skills Training  The Cognitive Learning Strategies Project  The Future  Performance  13  14  15  15  16  17  18  19  10  10  11  12  13  14  15  15  15  16  17  17  18  18  18  18  18  18  18  18		DONALD DANSEREAU		
Manipulation of Specific Strategy Components Previously Developed Programs for Enhancing Learning Strategies Preliminary Work on an Empirically Based Learning-Strategy Training Program Efforts to Expand and Improve the Learning-Strategy Training Program Concluding Comments References  26  2 Elaboration Skills as a Learning Strategy CLAIRE E. WEINSTEIN  Verbal Learning Tradition Empirical Mnemonic Research Elaboration Skills Training The Cognitive Learning Strategies Project The Future  Performance  32  33  44  45  46  47  48  48  48  49  49  49  40  40  40  40  40  40  40		Introduction	1	
Previously Developed Programs for Enhancing Learning Strategies  Preliminary Work on an Empirically Based Learning-Strategy Training Program  Efforts to Expand and Improve the Learning-Strategy Training Program  16 Concluding Comments  References  26  Elaboration Skills as a Learning Strategy  CLAIRE E. WEINSTEIN  Verbal Learning Tradition  Empirical Mnemonic Research  Elaboration Skills Training  The Cognitive Learning Strategies Project  The Future  Preferences  37  Preferences  38  29  20  31  32  32  33  34  35  35  35  36  36  37  37  38  38  39  30  30  30  30  31  32  33  34  35  35  35  36  36  37  37  38  38  39  30  30  30  30  30  30  30  30  30		Learning Strategies: A Brief Review and Synthesis	3	
Preliminary Work on an Empirically Based Learning-Strategy Training Program  Efforts to Expand and Improve the Learning-Strategy Training Program  Concluding Comments  References  26  26  28  28  28  29  29  20  20  20  21  21  22  23  24  24  25  26  26  27  28  28  29  20  20  20  20  20  20  20  20  20		Manipulation of Specific Strategy Components	4	
Efforts to Expand and Improve the Learning-Strategy Training Program Concluding Comments References  26  26  26  28  28  29  29  20  20  20  20  21  21  22  23  24  24  25  26  26  27  28  28  29  20  20  20  20  20  20  20  20  20		Previously Developed Programs for Enhancing Learning Strategies	7	
Concluding Comments References  26 References  27 Elaboration Skills as a Learning Strategy CLAIRE E. WEINSTEIN  Verbal Learning Tradition Empirical Mnemonic Research Elaboration Skills Training The Cognitive Learning Strategies Project The Future References  26 31 32 42 45 45 46 47 48 48 48 48 48 48 48 48 48 48 48 48 48		Preliminary Work on an Empirically Based Learning-Strategy Training Program	8	
References 26  2 Elaboration Skills as a Learning Strategy 31  CLAIRE E. WEINSTEIN  Verbal Learning Tradition 32  Empirical Mnemonic Research 35  Elaboration Skills Training 42  The Cognitive Learning Strategies Project 49  The Future 53		Efforts to Expand and Improve the Learning-Strategy Training Program	16	
2 Elaboration Skills as a Learning Strategy CLAIRE E. WEINSTEIN  Verbal Learning Tradition Empirical Mnemonic Research Elaboration Skills Training The Cognitive Learning Strategies Project The Future Performance  23 34 35 42 35 36 37 37 38 38 39 39 30 30 30 30 30 30 30 30 30 30 30 30 30		Concluding Comments	26	
CLAIRE E. WEINSTEIN  Verbal Learning Tradition Empirical Mnemonic Research Elaboration Skills Training The Cognitive Learning Strategies Project The Future  Performance  53  CLAIRE E. WEINSTEIN  32  Empirical Mnemonic Research 35  Elaboration Skills Training 42  The Cognitive Learning Strategies Project 53		References	26	
Verbal Learning Tradition 32 Empirical Mnemonic Research 35 Elaboration Skills Training 42 The Cognitive Learning Strategies Project 49 The Future 53	2	Elaboration Skills as a Learning Strategy	31	
Empirical Mnemonic Research 35 Elaboration Skills Training 42 The Cognitive Learning Strategies Project 49 The Future 53		CLAIRE E. WEINSTEIN		
Empirical Mnemonic Research 35 Elaboration Skills Training 42 The Cognitive Learning Strategies Project 49 The Future 53		Verbal Learning Tradition	32	
The Cognitive Learning Strategies Project 49 The Future 53		Empirical Mnemonic Research		
The Future 53		Elaboration Skills Training		
The Future 53		The Cognitive Learning Strategies Project		
Pafavagag		The Future		
		References		

ix

vi		Contents	

3	Behavior Modification and Learning Strategies	57
	FRANK RICHARDSON	
	Behavior Modification: Background and Perspective	58
	Anxiety Management Skills	60
	A Semi-Automated Test Anxiety Reduction Program	64
	Self-Monitoring Skills	69
	A Training Model References	73 77
4	Motor Skills and Learning Strategies	79
	ROBERT N. SINGER	
	Learner Strategies	80
	Conceptual Directions	82
	Some Reflections	87
	Cognitions and the Process of Skill Acquisition Practice Considerations for Learner Strategies	90 98
	Concluding Comments	101
	References	103
5	Artificial Intelligence and Learning Strategies	107
	JOHN SEELY BROWN	
	ALLAN COLLINS	
	GREGORY HARRIS	
	Understanding a Story	110
	Understanding Elementary Mathematics	117
	Constructing and Revising Hypotheses about Deep-Structure Traces	122
	Understanding Electronic Circuits	125
	Summary of Theoretical Concepts in Common over the Three Domains Formulations and Delivery of Some New Learning Strategies	134 137
	References	138
6	An Instructional Systems Development Approach	
	for Learning Strategies	141
	ROBERT S. LOGAN	
	Instructional Systems Development Phases	143
	Instructional Systems Development Considerations	147
	The Authoring Process	150
	Conclusion References	159 159
	ACICICICES	139

Co	ontents	vii
7	Learning Strategies: A Theoretical Perspective	165
	JOSEPH W. RIGNEY	
	External Facilitation and Internal Mediation in Instructional Systems	170
	Learning and Memory Processes	176
	The Structure of Cognitive Strategies	192
	Some Thoughts on Implementation	201
	Summary	201
	References	202
8	Program Evaluation	207
	HAROLD WAGNER	
	ROBERT J. SEIDEL	
	Evaluation Concepts and Models	207
	Transactional Evaluation as a Technique for Assessing Research Programs	210
	Human Resources Research Organization Program Evaluations	215
	Conclusions	224
	References	225
In	dex	227