

Contents

List of Illustrations and Tables	vii
Notes on Contributors	xi
Foreword by Professor Robert Foley	xvi
Acknowledgements	xviii

Introduction

Imaginative Minds: Concepts, Controversies, and Themes	xix
ILONA ROTH	

Part I Evolution of the Imagination

1. Seven Steps in the Evolution of the Human Imagination	3
STEVEN MITHEN	
2. Great Ape Cognition and the Evolutionary Roots of Human Imagination	31
ANDREW WHITEN AND THOMAS SUDDENDORF	
3. Memes, Minds, and Imagination	61
SUSAN BLACKMORE	

Part II Development of Imagination in Children

4. Autonomy and Control in Children's Interactions with Imaginary Companions	81
MARJORIE TAYLOR, STEPHANIE M. CARLSON, AND ALISON B. SHAWBER	
5. Imagination and Testimony in Cognitive Development: The Cautious Disciple?	101
PAUL L. HARRIS AND MELISSA KOENIG	

Part III Mind into Culture: Perspectives on Musical Imagination

6. Imagining Things: Mind Into Music (And Back Again)	123
NICHOLAS COOK	
7. Music, Science, and Culture	147
IAN CROSS	

Part IV Imagination, Cognition, and Creative Thinking

8. A Claim on the Reader 169
GREGORY CURRIE
9. Mental Imagery and Creative Thought 187
DAVID G. PEARSON
10. The Way We Imagine 213
MARK TURNER

Part V Cognitive Architecture of the Imagination

11. Specialized Inference Engines as Precursors of Creative Imagination? 239
PASCAL BOYER
12. A Module for Metaphor? The Site of Imagination in the Architecture of the Mind 259
DANIEL NETTLE

Part VI Atypical Imagination and Brain Mechanisms

13. Autism and the Imaginative Mind 277
ILONA ROTH
14. Imaging Imagination: Brain Scanning of the Imagined Future 307
JOHN G. GEAKE AND MORTEN L. KRINGELBACH
- Index 327

List of Illustrations and Tables

Plates (between p. 284 and p. 285)

- 1 *Wash Day in Pakistan* by Richard Wawro.
- 2 *St. Paul's and St. Andrew's Methodist Church and the Migraine Type Lightning and the Elves* by Jessica Park.

Figures

- | | | |
|-----|--------------------------------------------------------------------------------------------------------------------|-----|
| 1.1 | Seven steps in the evolution of the human imagination. | 6 |
| 1.2 | Feedbacks between dietary change, brain size, tool making, and bipedalism during the Early Pleistocene. | 9 |
| 1.3 | The evolution of human life history. | 10 |
| 1.4 | Domain-specific intelligences of the Early Human mind. | 13 |
| 1.5 | The evolution of Hmmmmm, music and language. | 18 |
| 1.6 | Cognitive fluidity. | 19 |
| 1.7 | Language and the creation of cognitive fluidity. | 20 |
| 1.8 | The extended mind. | 22 |
| 2.1 | The lines leading to bonobos, chimpanzees, humans, gorillas and orang-utans, based on the latest genetic analyses. | 33 |
| 2.2 | An artificial fruit being manipulated by a young chimpanzee. | 37 |
| 2.3 | Alternative ways of poking or pushing out bolts in an artificial fruit. | 40 |
| 2.4 | Four measures of 'creativity' in different primates' manipulations of a standard rope manipulandum. | 43 |
| 2.5 | An index of excess, absolute neural resource mass. | 54 |
| 5.1 | Mean looking at speaker, pictured object, and parent as a function of type of assertion. | 106 |

5.2	Proportion of denials as a function of age and type of assertion.	106
5.3	Mean number of 'yes' responses to existence question as a function of age and type of entity.	110
5.4	Mean number of 'yes' responses to appearance question as a function of age and type of entity.	111
5.5	Mean number of encounter, source, and generalization explanations offered by 4- to 5-year-olds for real and scientific entities.	112
5.6	Mean number of encounter, source, and generalization explanations offered by 7- to 8-year-olds for real and scientific entities.	112
5.7	Three potential outcomes when children are asked to judge the existence of three types of unobservable entity.	115
5.8	Mean number of existence, confident, and 'other people' judgements offered by 5- to 6-year-olds for credible, scientific, and incredible entities.	115
6.1	A photograph of the Japanese rock formation <i>Futami ga ura</i> .	132
6.2	The first sketch of the overall form of <i>Symphony[Myths]</i> .	133
6.3	A second more refined laying-out of the overall form of <i>Symphony[Myths]</i> .	134
6.4	The formalized plan for <i>Symphony[Myths]</i> with proportional specifics.	135
6.5	First movement plan for <i>Symphony[Myths]</i> .	136
6.6	The design of the 'male' rock with 13 strata (<i>Symphony/[Myths]</i>).	137
6.7	A detail of the 'male' rock design (<i>Symphony[Myths]</i>).	138
6.8	Bryn Harrison, <i>être-temps</i> for piano, p. 2.	142
6.9	Mozart, Quartet in G major, K. 387, bars 118–135.	145
9.1	Sample trial.	191
9.2	Stimuli set.	193
9.3	Sample synthesized patterns.	194
9.4	Illustration of multi-component model of working memory.	196

9.5	Model of mental synthesis performance.	198
9.6	Sample stimuli.	200
9.7	Illustration of synthesized patterns with high and low transformational complexity.	202
9.8	The Jastrow ambiguous duck–rabbit figure.	203
9.9	The effects of verbal labels on memory for ambiguous figures.	204
10.1	Blending network for <i>Harold and the Purple Crayon</i> .	216
10.2	Blending network for seal with a mind.	217
10.3	A Representation vital relation connecting elements in different inputs.	222
10.4	Blend of represented element and representing element.	223
10.5	Blend of represented element and representing element, with an additional Analogy vital relation.	223
10.6	Blend of Selkie World and Picture World.	228
10.7	Blending network for Get No Sales Tax.	231
10.8	Mental space networks for fishing and stock, under two different initial conditions.	232
10.9	Blending network for ‘over-fishing’.	232
10.10	Blending network for ‘over-consumption’.	233
10.11	Blending network for ‘missing’ fish.	234
10.12	Blending network for Harvesting/Eating over time.	234
10.13	Blending network for Fishing/Eating food off our children’s plates.	235
12.1	Two possible sites of the faculty of imagination in the architecture of the mind.	261
12.2	A Barrettian mind.	263
13.1	A drawing of a horse, by Nadia, aged about 4 years.	285
13.2	Drawings of a man and dog by typically developing children.	286
13.3	<i>View from San Giorgio Maggiore</i> by Stephen Wiltshire.	287
13.4	<i>Central Park</i> by Stephen Wiltshire.	288
13.5	<i>Place de la Catalogne (3rd, 4th, 6th and 7th arr.)</i> and explanatory caption by Gilles Tréhin.	291

13.6	<i>Symbolic Impressions MK-81</i> by Peter Myers.	294
14.1	Some areas of the brain involved in imagination.	309
14.2	Tentative model of the global workspace.	312
14.3	Significant clusters of neural activation, as determined by fMRI, associated with fluid analogizing tasks.	321

Tables

2.1	Putative examples of pretence in apes in the research literature.	46
4.1	Imaginary companion (IC) status.	84
4.2	Examples of noncompliant and compliant imaginary companions.	88
13.1	Examples of features coded by content analysis.	298