Table of Contents

List of Referees	xi
Directions for Design Creativity Research (Invited Papers)	1
Discussion on Direction of Design Creativity Research (Part 1) - New Definition of Design and Creativity: Beyond the Problem-Solving Paradigm <i>Toshiharu Taura and Yukari Nagai</i>	3
Discussion on Direction of Design Creativity Research (Part 2) - Research Issues and Methodologies: From the Viewpoint of Deep Feelings and Desirable Figure <i>Yukari Nagai and Toshiharu Taura</i>	9
Future Directions for Design Creativity Research John S. Gero	15
Systematic Procedures Supporting Creativity - A Contradiction? Udo Lindemann	23
Better, Not Catchier: Design Creativity Research in the Service of Value Gabriela Goldschmidt	29
Using Evolved Analogies to Overcome Creative Design Fixation Steven M. Smith, Julie S. Linsey and Andruid Kerne	35
Design Creativity Research: From the Individual to the Crowd Mary L. Maher	41
Motivation as a Major Direction for Design Creativity Research Amaresh Chakrabarti	49
Design Research and Designing: The Synergy and The Team Yong Se Kim	57
Theories on Design Creativity	61
Not from Scratch: The DMS Model of Design Creativity Gabriela Goldschmidt	63

viii Contents

Influence of Environmental Information on Expert-perceived Creativity of Ideas Daniel Collado-Ruiz and Hesamedin Ostad-Ahmad-Ghorabi	71
Towards a New Theory for Design Activity Reasoning Denis Choulier	79
Design Process and Cognition 1	87
An Approach to Measuring Metaphoricity of Creative Design Hung-Hsiang Wang and Jung-Hsuan Chan	89
Interrelations between Motivation, Creativity and Emotions in Design Thinking Processes – An Empirical Study Based on Regulatory Focus Theory Madeleine Kröper, Doris Fay, Tilmann Lindberg and Christoph Meinel	97
Conceptual Design and Cognitive Elements of Creativity: Toward Personalized Learning Supports for Design Creativity Yong Se Kim, JongHo Shin and Yun Kyoung Shin	105
Analogical Design Computing	113
DANE: Fostering Creativity in and through Biologically Inspired Design Swaroop Vattam, Bryan Wiltgen, Michael Helms, Ashok K. Goel and Jeannette Yen	115
Development of a Catalogue of Physical Laws and Effects Using SAPPhIRE Model Srinivasan V. and Amaresh Chakrabarti	123
Measuring Semantic and Emotional Responses to Bio-inspired Design Jieun Kim, Carole Bouchard, Nadia Bianchi-Berthouze and Améziane Aoussat	131
Design of Emotional and Creative Motion by Focusing on Rhythmic Features <i>Kaori Yamada, Toshiharu Taura and Yukari Nagai</i>	139
Design Synthesis	147
Create Adaptive Systems through "DNA" Guided Cellular Formation George Zouein, Chang Chen and Yan Jin	149
Developing a Coding Scheme to Analyse Creativity in Highly-constrained Design Activities <i>Elies A. Dekoninck, Huang Yue, Thomas J. Howard and Christopher A. McMahon</i>	157
Effectiveness of Brainwriting Techniques: Comparing Nominal Groups to Real Teams Julie S. Linsey and Blake Becker	165
Methods and Tools for Design Creativity	173
Front End Industrial Design (FE-ID) - Developing New Tools and Models for Industrial Designers to Operate at the Front End of New Product Development <i>Paul W. Wormald</i>	175
Virtuality – Offering Opportunities for Creativity? Anthony Williams, Ning Gu and Hedda Haugen Askland	183
Thinking Inside the Box: Model, Tool, Team and Setting for Building Design <i>Wim Zeiler</i>	191
Signs of Collaborative Ideation and the Hybrid Ideation Space Tomás Dorta, Annemarie Lesage, Edgar Pérez and J.M. Christian Bastien	199

	Contents	ix
Design Process and Cognition 2		207
Creativity: Depth and Breadth Barbara Tversky and Juliet Y. Chou		209
Research Methodology for the Internal Observation of Design Thinking through the Creative Self-formation Process <i>Yukari Nagai, Toshiharu Taura and Koutaro Sano</i>		215
Design as a Perception-in-Action Process Katja Tschimmel		223
Verbal Stimuli in Design Creativity: A Case-study with Japanese Sound-symbolic Words <i>Céline Mougenot and Katsumi Watanabe</i>		231
Visual Representation in Design		239
Creative Collaborative Strategies of Remote Sketching on Design Luz-Maria Jimenez-Narvaez and Arturo Segrera		241
Creation of New Fashion Illustration Painting Techniques by Use of India-ink Painting Techniques Research into Line Drawing Techniques of Expression in Fashion Illustrations Sachiko Nagasawa, Shin'ya Nagasawa and Kazunari Morimoto	:	249
How Uncertainty Helps Sketch Interpretation in a Design Task Winger S.W. Tseng and Linden J. Ball		257
The Complementary Role of Representations in Design Creativity: Sketches and Models Alejandro Acuna and Ricardo Sosa		265
Design Education		271
A Creativity Environment for Educational Engineering Projects when Developing an Innovative Pr A Case Study Karl Hain, Christoph Rappl and Markus Fraundorfer	oduct:	273
The Metaphor of an Ensemble: Design Creativity as Skill Integration <i>Newton S. D'souza</i>		281
Coaching the Cognitive Processes of Inventive Problem Solving with a Computer Niccolò Becattini, Yuri Borgianni, Gaetano Cascini and Federico Rotini		289
Creative Engineering Design Aspects given in a Creativity Training Course Joaquim Lloveras, Miguel-Angel Saiz, Carlos García-Delgado, Jairo Chaur, Lluis Claudí, Anna Barlocci and Laura Carnicero		297
Design Image and Inspiration		305
Differential Approach of Design Image and Similarity Cognition YiTing Huang and Hung-Hsiang Wang		307
Poetry and Design: Disparate Domains but Similar Processes Erin L. Beatty and Linden J. Ball		315
Design by Customer: a Management of Flexibilities Risdiyono and Pisut Koomsap		323



http://www.springer.com/978-0-85729-223-0

Design Creativity 2010 (Eds.)T. Taura; Y. Nagai 2011, XII, 330 p. 191 illus., Hardcover ISBN: 978-0-85729-223-0