

Intuition How we think and act

Tony Bastick



JOHN WILEY & SONS Chichester · New York · Brisbane · Toronto · Singapore

Copyright © 1982, by John Wiley & Sons, Ltd.

All rights reserved.

No part of this book may be reproduced by any means nor transmitted, nor translated into a machine language without the written permission of the publisher.

British Library Cataloguing in Publication Data:

Bastick, Tony

Intuition: How we think and act

1. Intuition (Psychology)

I. Title

153.4'4

BF311 80-42060

ISBN 0 471 27992 7

Typeset by Photo-Graphics, Yarcombe, Honiton, Devon. Printed at The Pitman Press, Bath, Avon.

This book is dedicated to my family who made it possible; and necessary.

List of Tables and Figures

Table 1.3/1	Numbered properties of intuition and insight	25
Table 1.3/2	Tabulation of references to properties of intuition and insight in theoretical and in operational use	43
Table 1.3/3	Matrix of Spearman's (R(S) rank correlation of insight and intuition in theoretical and in operational use — showing similarity by properties of insight or intuition ranked on number of references to properties in these categories	45
Table 1.3/4	Dissimilarity in general meaning of the terms intuition and insight, in theoretical and operational use: as shown by their properties ranked according to their relative contribution to this dissimilarity	46
	Dissimilarity in the use of the terms intuition and insight (in theoretical compared with operational use): as shown by their properties ranked according to their relative contribution to this dissimilarity	47
Fig. 1.3/6	Illustration of part of the complex interdependence between just six properties of intuition	49
Table 1.3/7	Numbered properties of intuition and insight ordered by total number of references to them in column T5 of Table 1.3/2	50
Fig. 2.1/1	Comparing three sizes intuitively and analytically	53
•	* *	55
Fig. 2.1/2	Analytic solutions of the shortest route given by pairwise comparisons	53
Fig. 2.1/3	Analogous example of global feedback in the intuitive process contrasting with the analytic process	54

Fig. 2.1/4	Ausubel's model of intuitive thinking as primarily referral between superordinate concepts	58
Fig. 2.1/5	Ausubel's model of analytic thinking as primarily referral between subordinate concepts	59
Fig. 2.1/6	Objects intuitively assessed by active touch and kinaesthesis	61
Fig. 2.2/1	Physiognomy of flash card giving intuitive sense of mathematical relations	63
Fig. 2.2/2	Item whose solution is suggested by its physiognomy	64
Fig. 2.2/3	Geometric properties of lines different from their physiognomic properties	64
Fig. 2.3/1	Restructuring of relations in recentring	73
Fig. 3.1/1	Emotional sets influencing perceived groupings	89
Fig. 3.1/2	Yerkes-Dobson Law applied to accuracy of perception varying with emotional involvement	91
Fig. 3.1/3	Pupillary, heart-rate, and skin resistance changes while adding up to four digits (from Kahneman, D. et al., 1969)	94
Fig. 3.1/4	Graph of activation level against learning performance on a spatial learning task	99
Fig. 3.1/5	Activational peaking of low information demanders but not high information demanders, on a problem-solving task (from Blatt, S., 1961).	100
Fig. 3.1/6	Directional fractionation response according to the nature of subjects' tasks, for fifteen subjects (from Sternbach, R.A., 1966, p. 88)	102
Fig. 3.1/7	Graph of differing effects of fear and anger on means of fourteen physiological responses (from Sternbach, R.A., 1966, p. 85)	103
Fig. 3.2/1	Semantic differential rating of 'socialism' on seven-point scale of three 'independent' emotional dimensions (from Osgood, C.E., 1952)	109
Fig. 3.2/2	Conditioned structure and association process of an emotional set	111
Fig. 3.2/3	Errors in intuitive estimation decrease approaching the emotional set of the anchor stimulus	119
Fig. 4.1/1	Structure of drastic recentring 'Eureka' experience	148

		XIX
Fig. 4.3/1	Four possible types of relationships between two non-unique attributes of intuition	168
Fig. 5.1/1	Sander parallelogram	179
Fig. 5.1/2	Physiognomy of multivariate data (from Everitt, B., 1978, p. 94)	182
Fig. 5.3/1	'Mathematical fact' as the intersection of people's connotations with the fact: and an 'abstract concept' as the intersection of a person's contextual exemplars	203
Fig. 5.3/2	Diagram of an emotional set	207
Fig. 5.3/3	Network of emotional sets with high transition probabilities	207
Fig. 5.4/1	Embeddable emotional sets	218
Fig. 5.4/2	Tendency of concurrent stimuli to evoke different emotional sets simultaneously	221
Fig. 5.4/3	Conditioned elements causing simultaneous tendencies to bring alternative emotional sets into consecutive combinations	221
Fig. 5.4/4	Illustrating redundancy as alternative conditioning	223
Fig. 5.4/5	Altering the relative importance of elements to evoke and categorize emotional sets by reinforcing conditioning	224
Fig. 5.4/6	Cognitive and affective attributes in common between similar emotional sets	226
Fig. 5.4/7	Flow diagram of increasing redundancy directing combinations of emotional sets to the terminating conscious intuition	228
Fig. 5.4/8	Increased redundancy by hierarchical embedding of similar emotional sets with a high transition probability	229
Fig. 5.4/9	Drifting through a chain of emotional sets with high transition probabilities	230
Fig. 5.4/10	High redundant responses available under low ego threat	233
Fig. 5.4/11	Low redundant responses available under high ego threat	233
Fig. 5.5/1	Experienced cognitive and affective attributes in common between stimuli represented by links	238
Fig. 5.5/2	Increased redundancy by adding jointly associated	238

Fig. 5.5/3	Associating a novel stimulus with an emotional set by adding associated elements	238
Fig. 5.5/4	Immediate intuitive recognition	240
Fig. 5.5/5	Intuitive recognition after an incubation period	240
Fig. 5.5/6	Incorrect intuitive recognition resulting from high redundancy in common associations	241
Fig. 5.5/7	Recognized stimuli intuitively judged as similar	242
Fig. 5.5/8	Recognized stimuli intuitively judged as dissimilar	242
Fig. 5.5/9	Intuitive judgment of the similarity of novel stimuli	243
Fig. 5.5/10	Intuitive judgment of the dissimilarity of novel stimuli	244
Fig. 5.5/11	Intuitive acceptance of a group of recognized stimuli	245
Fig. 5.5/12	Intuitive unacceptance of a group of recognized stimuli	245
Fig. 6.1/1	Visual/Auditory cross-modal transposition	257
Fig. 6.3/1	Illustrating the role of empathic projection in the intuitive process	281
Fig. 8.1/1	Examples of Westcott's measures of intuitive thinking (based on Kaplan, H.A., 1973)	325
Fig. 9.1/1	Hierarchical network of emotional sets illustrating the organization	357
Fig. 9.2/1	Band of continually changing emotional states	358
Fig. 9.2/2	Physiological set as a succession of emotional states in which stimuli act in accord	359
Fig. 9.2/3	Two emotional sets with some redundancy	359
Fig. 9.2/4	Highly redundant emotional sets linking chains of probable associations	360
Fig. 9.2/5	Highly redundant nodes in the network of emotional sets of high transition probability	361
Fig. 9.3/1	Highly redundant structure	364
Fig. 9.3/2	Sparsely redundant structure	365
Fig. 9.3/3	Functional fixedness in non-intuitive thought	366
Fig. 9.3/4	Redundant structure for intuitive thought overcomes functional fixedness	366
Fig. 9.4/1	Concordance	368

		xxi
Fig. 9.4/2	Similarity or dissimilarity of response constituents giving concordant or discordant responses	368
Fig. 9.4/3	Discordance	369
Fig. 9.4/4	Redundancy resolving discordance	369
Fig. 9.4/5	Increased redundancy by hierarchical embedding of similar emotional sets with a high transition probability	373
Fig. 9.4/6	Distribution of transition probabilities T_{AB} at different redundancy levels R	374
Fig. 9.4/7	Drifting through a chain of emotional sets with high transition probabilities	375
Fig. 9.4/8	Highly redundant chains of emotional sets before recentring	377
Fig. 9.4/9	Highly redundant chains of emotional sets after recentring	378
Fig. 9.5/1	Summary diagram illustrating the probability of experiencing the processes involved in creativity	388

Introduction

Creativity is the quintessence of man; and the spark of inspiration, the insight, the intuitive understanding on which our creativity depends is fundamental to both the fulfilment of the individual and the progress of humanity. This book includes an investigation into that fundamental intuitive process. But the investigation also leads to an encompassing description of how we think and act. This description includes a Theory of Intuitive Thought which develops from the investigation and explains the phenomenon of intuition. This description of how we think and act shows that intuition is a product of accepted psychophysiological processes of thought and behaviour that occur under particular conditions of personality, environment, and experience. These conditions are not mystical; rather they are conditions with which we are all familiar. The encompassing description is a fundamental organization which synthesizes many and varied phenomena of thought and behaviour, including the phenomena of intuition and creativity.

It has been usual for other descriptions of integrated thought and behaviour each to have been open to many interpretations; mainly because their key words have slightly different meanings for readers from various backgrounds. These implicit, ambiguous interpretations have reduced the practical use of such descriptions. In order to increase the usefulness of this description of how we think and act, the terms used are closely defined; terms such as empathy, projection, and creativity, which in Chapter 9 are formally defined by probability statements. The investigation also reviews numerous experiments related to intuition showing how and why their methodology may be used by readers whose studies include the phenomenon of intuition; for example studies of creativity, of teaching, or of problem-solving.

We first consider how the words 'intuition' and 'insight' are used, in order to find a consensus meaning of these words. However, we find that the literature contains no precise definitions. For example some 'definitions' used by philosophers are metaphysical and some are even mystical; some even 'define' intuition as something that one cannot define. Generally 'definitions' from the literature are just descriptions in terms of associated properties which are themselves only loosely defined. From these descriptions we identify twenty properties commonly associated with intuition; properties such as empathy, creativity, etc. We then investigate how these twenty properties are associated with intuition. The phenomena of thought and behaviour that involve these properties are very varied and their interrelations are most complex. However, the fundamental organization presented in Chapter 9 synthesizes simply the findings of this investigation.

The range and variety of phenomena synthesized by this organization enable the organization to describe thought and behaviour in general and to include a Theory of Intuitive Thought which explains the phenomenon of intuition in particular.

Contents

		xvii
		xxiii
Chapter	r 1 Studies of Intuition	1
1.1	POWER AND PERVASION OF INTUITION	1
	Need for Research into Intuition	4
	Gestalt versus Behaviourist 'Insight' Controversy and its Effect on the Literature	4
	Need to Discover the How-What-When-and-Why of	
	Intuition	8
	Applying Intuition in Education	10
1.2	SPECIALIST USE AND MEANINGS OF 'INTUITION'	13
	Studies Involving Religious Views of Intuition	16
	Philosophic Studies of Intuition	16
	Literature Reviews on the Meaning of Intuition	17
	Studies of Intuition in Psychotherapy and Related Fields	17
	'Intuition' Definitions Specific to One Specialism are Misleadingly Applied to Another	19
	Practical Studies on Intuition and Insight	20
1.3	PROPERTIES ATTRIBUTED TO 'INTUITION' AND 'INSIGHT'	24
	Theoretical Considerations of Intuition	24
	Theoretical Considerations of Insight	29

	'Intuition' Used in Experiments	32
	'Insight' Used in Experiments	35
	Experiments Using Practical Insight Problems	35
	Insight Experiments Requiring Subjects to Discover Rules.	36
	Insight Experiments Using Logic Relations	38
	Experiments on 'Animal Insight'	40
	Numerical Comparison of the Terms 'Intuition' and 'Insight' in Theoretical and Operational Use, by their Attributed Properties	40
	'Intuition' an Older and More Generally Used Term than 'Insight'	41
	Similarities and Differences in the Meaning and Usage of 'Insight' and 'Intuition' in Terms of their Properties	42
	Summary of Comparisons of 'Insight' and 'Intuition'	46
Chapter	• • • • • • • • • • • • • • • • • • • •	51
2.1	INTUITION CONTRASTS WITH LOGIC	51
	Analytic Versus Intuitive Thought Construed as Discrete	
	Consecutive Binary Relations versus Continuous Simultaneous MultiRelations	52
		56
	Intuitive/Analytic Continuum	58
	Summary of the Contrasts Between Intuitive Thought and	30
	Abstract Reason	61
2.2	INTUITIVE SENSE OF RELATIONS	62
	Physiognomic Perception Gives the Intuitive Sense of	
	Relations	62
	Mathematical, Artistic, and Scientific Relationships	(2
	Intuitively Sensed through Physiognomic Perception	63
	Empathy and Projection giving Physiognomy Necessary for Intuitive Sense of Relations	68
	Summary of Intuitive Sense of Relations	68
2.3	RESTRUCTURING RELATIONSHIPS	69
2.3		09
	Recentring is the Unlikely Combination of Similar Emotional Sets	70
	Functional Fixation Inhibits Intuitive Recentring	72
	Humour Involves Recentring	75
	Summary of Recentring	76

		ix
2.4	INTUITION IS INFLUENCED BY EXPERIENCE	77
	Affective Coding of Cognitions	77
	Emotional Sets Conditioned by Past Experience are Intuitively Used to Evaluate Present Experience	78
	Emotional Experience Used for Intuitive Recall	79
	Experience Can Reinforce the Appropriateness of Empathic Responses	81
	Summary of How Intuition is Influenced by Experience	82
Chapte	er 3 Dependence on Emotional Involvement	84
3.1	EMOTIONAL/COGNITIVE INTERACTION IN THE	
	INTUITIVE PROCESS	84
	Perceptions Inducing and Influencing Emotional States	87
	Emotional States Influencing Perceptions	90
	Ego Threat Inhibits Intuition	91
	Psychophysiological Experiments Involving the Perception/ Emotion Interaction	92
,	Psychophysiological Experiments Involving Cognitive Functions in Various Degrees of Complexity, Activational Peaking, and Kinaesthesis	93
	Psychophysiological Experiments which Monitor the Physiological Effects of Emotions	102
	Personality Correlates of Physiological Responses and the Intuitive Type	105
3.2	DEVELOPMENT AND USE OF EMOTIONAL SETS	107
	Conditioning of Percepts to Emotional States	107
	Conditioning of Response Tendencies to Give Emotional Sets	110
	Reduction in Tension Accompanying Insight Gives Learning, Confidence, Intrinsic Motivation, and	
	Organization of Perception	112
	Emotional Sets Used for Intuitive Recognition	114
	Emotional Sets Used for Intuitive Acceptance	116
	Emotional Sets Used for Intuitive Judgments and Decisions	117
	Insight as 'Single Trial Learning'	123
	Intuitive Recall and Problem-solving	124

Summary of the Use of Emotional Sets in the Intuitive

126

3.3	PERSONALITY CONCOMITANTS OF EMOTIONAL INVOLVEMENT IN INTUITIVE PROCESSES	127
	Body Reference, Body Image, and Barrier Score Concomitants of the Intuitive Type	127
	Spatial k Factor and Cognitive Style Concomitants of	
	the Intuitive Type	129
	Summary of Emotional Involvement in the Intuitive Process.	133
Chapte	r 4 Preconscious, Anxiety-reducing Process	139
4.1	INTUITION IS A PRECONSCIOUS PROCESS	139
	Preconscious Criterion of Intuition	140
	Preconscious Intake and Storage of Information for	
	the Intuitive Process	142
	Primary-Process Thinking	143
	Preconscious Processing of Information Resulting in	
	Intuition	144
	The Role of Preconscious Incubation in Insight	147
4.2	INTUITION USES SUBJECTIVE CERTAINTY	150
	Confidence Accompanying Intuitions	151
	Subjectivity of the Certainty that Accompanies Intuition	152
	Fluctuating Anxiety States During the Intuitive Process	157
	Inhibition of Anxiety Under Threat as a Physiological	
	Predictor of Confidence in an Intuitive Product	159
4.3	CONFIDENCE IN INTUITION	160
	Subjective Confidence Accompanying the Intuitive Phase	
	of Creativity	161
	Effects of Confidence and Anxiety Reduction on the	
	Intuitive Process	163
	Confidence Reinforcing Choice of the Intuitive Mode for Problem-solving	164
	Conditioning Effect of Confidence on Emotional Sets	16:
	Anxiety and its Reduction as Learned Intrinsic Motivation.	166
	Personality Concomitants of Confidence in the Intuitive	100
	Process	167
	Summary of Subjective Certainty of Correctness	170

Chapter	5 Global Knowledge Property of Intuition	171
5.1	GLOBAL NATURE OF INTUITION	171
	Intuition Integrates Perception, Emotional Involvement,	
	and Experience	172
	Global Information	173
	Multimodal Physiognomy	173
	Redundancy of Intuitive Global Information	177
	Controlled Global Information Used in Experiments to Encourage Intuitive Thinking	179
5.2	GLOBAL PERCEPTION	183
	Peripheral Cue Utilization Increases Contextual Information	183
	Organizational Characteristics of Global Perception Define Cognitive Styles and Personality Traits	
	Commensurate with the Intuitive Type	186
	Intuition as Function of the Right Cerebral Hemisphere	188
	Superiority of Imagery for Cognitive Representation and Global Transformation of Intuitive Information	191
	Appraisal of Affective and Cognitive States	193
5.3	ORGANIZATION OF GLOBAL INFORMATION	194
	External Stimuli Organized for Intuitive Processing Through Encoding by Internal Events	196
	Priority of Internal versus External Contexts for Categorizing Corresponds to Field-independence versus Field-dependence Cognitive Style	198
	Mood, Kinaesthesis, and Affective Sensitivity Integrate	170
	External Stimuli into a Physiognomy of the Whole	200
	Categorizing Global Information by Emotional Sets	202
	Formalized Emotional Sets	206
	Variable Encoding Increases Facilitating Redundancy	210
5.4	GLOBAL NATURE OF THE INTUITIVE PROCESS	215
	Non-linear Parallel Processing of Global Multi-categorized Information Gives the Speed and Error Distributions Characteristic of Intuitive Processes	215
		215
	Embedding Emotional Sets Increases Selected Information Stimuli Have Simultaneous Competing Tendencies to	217
	Evoke and Combine Different Emotional Sets	220
	Intuitive Process Increases Redundancy	222

	Intuitive Learning versus Rote Learning Resulting from Redundancy Increasing Alternative Conditioning versus Reinforcing Conditioning	225
	Increasing Redundancy by Hierarchical Embedding of Emotional Sets	228
	Increasing Redundancy by Drifting Through Emotional Sets of High Transition Probability	230
	Increasing Redundancy by Recentring Emotional Sets with Low Transition Probability	231
	Ego Threat Inhibits Intuition by Partitioning Global Knowledge	232
5.5	GLOBAL NATURE OF INTUITIVE PRODUCTS	236
	Increased Redundancy Leading to Immediate and Delayed Intuitive Recognition	239
	Increased Redundancy Leading to the Intuitive Judgment of Similarity of Recognized and Novel Stimuli	242
	Increased Redundancy Leading to Intuitive Acceptance	244
	Increased Redundancy Leading to Intuitive Judgment of Suitability	247
	Summary of the Global Knowledge Property of Intuition	249
Chapte	r 6 Intuitive Feelings, Empathy, and Projection	254
6.1	INTUITION FACILITATES TRANSFER AND TRANSPOSITION	25/
		254 254
	Transfer of Learning as Behaviourists' Criterion of Insight Cross-modal Transposition Facilitates Transfer of	254
	Intuitive Thought	256
	Transfer of Idiosyncratic Dimensions	258
6.2	INTUITIVE UNDERSTANDING THROUGH FEELING	260
	Feelings of Relation, Feelings of Confidence, and Feelings Resulting in Intuitive Products	260
	Feelings Give Intuitive Understanding	262
	Self-sensitivity to Feelings on a Multitude of Physiological Dimensions	263
	Cognitive Events Conditioned to Feelings	264
	Indications of How the Body is Self-sensitive to Feeling	267
	Abstract Thought as Intuitive Processing of Personalized	207
	Feeling Models of Originally Concrete Analogies	271