

# CONTENTS

---

<b>Introduction</b>	
<b>CHAPTER ONE: Basic Concepts of Cognitive Psychology</b>	<b>1</b>
<b>Introduction</b>	<b>1</b>
What Is Cognitive Psychology	1
Cognitive Psychology and Related Disciplines	2
<b>Reading: An Example of Human Information Processing</b>	<b>3</b>
<b>Representation and Processing of Knowledge</b>	<b>5</b>
Mental Representation	5
Mental Procedures	10
<b>Characteristics of Human Information Processing</b>	<b>15</b>
Feature Analysis	15
Hierarchical Organization	18
Evidence of Hierarchical Feature Analysis in Reading	19
Bottom-up vs. Top-down Procedures	21
Parallel Processing	23
<b>Models of Word Recognition</b>	<b>24</b>
Logogen Model	24
Hierarchical Models and the Word Superiority Effect	25
<b>Summary</b>	<b>29</b>
<b>Recommended Readings</b>	<b>30</b>
<b>CHAPTER TWO: Attention</b>	<b>33</b>
<b>Introduction</b>	<b>33</b>
<b>Attention and Information Processing</b>	<b>34</b>
Awareness of Unattended Inputs	35
Attention and Memory	36
Mechanisms for Rapid Response	37
Model of Attention	39
Neurological Organization and Attention	39
<b>Alerting</b>	<b>43</b>
Dual-Process Model of Alerting	43
Response of Alerting Mechanisms	45

<b>Preconscious Processing</b>	<b>46</b>
Focusing Attention	47
Detection of Multiple Targets	56
<b>Comparison Level</b>	<b>58</b>
Comparison-Level Bottleneck	59
Activation of Multiple Representations	62
Automatic Activation	62
Conscious Inhibition	63
Executive Selection as Inhibition	65
Processing of Unattended Inputs	65
Capacity and the Maintenance of Attention	67
<b>Automatization of Attention</b>	<b>69</b>
Effect of Practice	69
Stroop Effect	70
<b>Posterior Cortical Injury and the Neglect Syndrome</b>	<b>72</b>
<b>Summary</b>	<b>74</b>
<b>Recommended Readings</b>	<b>75</b>
<b>CHAPTER THREE: Action and Control</b>	<b>77</b>
<b>Introduction</b>	<b>77</b>
<b>Actions</b>	<b>80</b>
Reflexes	80
Discrete Motor Movements	81
Continuous Perceptual Motor Skills	83
Skill Learning	85
<b>The Executive</b>	<b>87</b>
Schemas	88
Divided Attention	89
Monitoring	91
Vigilance	93
<b>Variations in Executive Control</b>	<b>95</b>
Hypnosis and Meditation	95
Changes in Control with Age	97
<b>Disorders of Control</b>	<b>98</b>
Frontal Injury	98
Split-Brain Patients	99
<b>Arousal</b>	<b>101</b>
Yerkes-Dodson Law	102
Changes in Consciousness During the Daily Life Cycle	103
Defects in Arousal	105
Drives and Motives	108
<b>Summary</b>	<b>108</b>
<b>Recommended Readings</b>	<b>109</b>
<b>CHAPTER FOUR: Visuospatial Representation</b>	<b>111</b>
<b>Impaired Perception: A Case Study</b>	<b>111</b>
<b>Visual Perception</b>	<b>112</b>
Retinal-Image Theory	112

Cues for Visual Perception	114
Perception as a Constructive Process	114
Visuospatial Subcodes	115
Perception of Form	117
Bottom-up and Top-down Processing in Visual Perception	125
Artificial Intelligence and Vision	127
Intermodal Conflict	130
<b>Mental Imagery</b>	<b>132</b>
Properties of Mental Imagery	132
Imagery and Perception	136
<b>Spatial Cognition</b>	<b>140</b>
Route and Survey Knowledge	140
Distortions in Geographical Knowledge	141
<b>Visuospatial Representation and the Brain</b>	<b>145</b>
<b>Summary</b>	<b>147</b>
<b>Recommended Readings</b>	<b>148</b>
<b>CHAPTER FIVE: Categorization</b>	<b>149</b>
<b>Introduction</b>	<b>149</b>
<b>Representation of Categories</b>	<b>151</b>
Enumeration	151
Definition by Properties	152
Categories and Memory Organization	157
Organization of the Semantic Code	157
<b>Natural Categories</b>	<b>160</b>
Structure of Color Categories	160
From Focal Colors to Focal Instances	164
From Focal Instances to Prototypes	165
Basic-Level Categories	166
Family Resemblances	167
Abstract Concepts	168
<b>Induction of Visual Categories</b>	<b>169</b>
Investigations of the Prototype Hypothesis	170
Challenges to the Prototype Hypothesis	173
<b>Retrieval and Comparison of Categories</b>	<b>175</b>
Evidence for the Comparison Process	176
Evidence for the Retrieval Process	177
Synthesis of the Comparison and Retrieval Views	178
<b>Summary</b>	<b>179</b>
<b>Recommended Readings</b>	<b>179</b>
<b>CHAPTER SIX: Process of Recognition</b>	<b>181</b>
<b>Introduction</b>	<b>181</b>
<b>Basic Retrieval Model</b>	<b>182</b>
Recognition and Recall	183
How Recognition Operates	184

<b>Memory Comparisons and Recognition</b>	<b>186</b>
Role of Similarity	187
Effects of Context	190
<b>Decision Processes in Recognition</b>	<b>194</b>
Identification and Recall	194
Familiarity	196
Determinants of Recognition Decisions	197
Sensitivity and Criterion in Recognition Judgments	199
<b>Human Recognition Capacities</b>	<b>202</b>
Visual Recognition	203
Other Sense Modalities	204
<b>Summary</b>	<b>205</b>
<b>Recommended Readings</b>	<b>206</b>
<b>CHAPTER SEVEN: Process of Recall</b>	<b>207</b>
<b>Introduction</b>	<b>207</b>
<b>Generation of Responses</b>	<b>209</b>
Associations and Concept Activation	209
Forgetting in the Distractor Paradigm	212
<b>Role of Cues in Generation</b>	<b>217</b>
Secondary Recall Cues	218
Fluctuations in Recall	224
<b>Contextual Effects on Recall</b>	<b>225</b>
Context-Dependent Recall	225
State-Dependent Memory	226
Discriminating Targets from Distractors	227
<b>Summary of Factors Influencing Recall</b>	<b>227</b>
<b>Visual Recall</b>	<b>228</b>
Visual Cues	228
Free Recall	230
Differences Between Verbal and Visual Memory	230
<b>Summary</b>	<b>233</b>
<b>Recommended Readings</b>	<b>234</b>
<b>CHAPTER EIGHT: Reconstruction of Episodes</b>	<b>235</b>
<b>Introduction</b>	<b>235</b>
<b>Reconstruction and Recall</b>	<b>236</b>
Reconstruction vs. Search	236
Use of Rules in Recall	236
<b>Story Recall</b>	<b>237</b>
Story Hierarchies	238
Verbatim vs. Gist Recall	241
Distortions in Story Recall	242
<b>Reconstruction of Life Experiences</b>	<b>244</b>
Constructing Perceptual Memories	244
Recall of Personal Episodes	244

Temporal Memory	246
Memory for Actions, Intentions, and Opinions	249
<b>Retrieval Disorders</b>	<b>251</b>
Temporary Amnesia	252
Permanent Amnesia	254
<b>Summary</b>	<b>259</b>
<b>Recommended Readings</b>	<b>260</b>
<b>CHAPTER NINE: Incidental Learning</b>	261
<b>Introduction</b>	<b>261</b>
<b>Perceptual Learning</b>	<b>262</b>
Automatic Activation	262
Bootstrap Model	263
Face Recognition	263
Development of Perceptual Skill	264
Incidental-Category Learning	265
<b>Conceptual Encoding</b>	<b>267</b>
Attention and Memory	267
Dynamic Memory Processes	269
Repetition	269
Proactive Interference	273
Sequence Learning	277
<b>Memory and Aging</b>	<b>278</b>
Retention	278
Encoding	281
<b>Episodic Encoding and Retention</b>	<b>282</b>
Factors Influencing Encoding	282
Understanding and Learning	287
Retention of Complex Events	290
<b>Anterograde Amnesia</b>	<b>292</b>
Diencephalic Amnesia: Korsakoff's Syndrome	293
Hippocampal Amnesia	298
Emotion and Encoding	300
<b>Summary</b>	<b>301</b>
<b>Recommended Readings</b>	<b>301</b>
<b>CHAPTER TEN: Mnemonics and Memory Skill</b>	303
<b>Introduction</b>	<b>303</b>
<b>Natural Mnemonic Strategies</b>	<b>304</b>
Rehearsal	304
Imagery	311
Instructions to Organize	313
<b>Specialized Mnemonic Strategies</b>	<b>314</b>
Chunking	315
Natural-Language Mediation	318
Semantic Elaboration	318

Serial-Order Mnemonics	319
Detrimental Effects of Mnemonic Strategies	321
Outlining and Hierarchical Organization	323
<b>Minds of the Mnemonists</b>	<b>325</b>
Lighting Calculator	326
Mnemonist V. P.	327
Mnemonist S.	328
Normal and Expert Memory	330
<b>Summary</b>	<b>331</b>
<b>Recommended Readings</b>	<b>332</b>
<b>CHAPTER ELEVEN: Reasoning and Decision Making</b>	<b>333</b>
<b>Introduction</b>	<b>333</b>
Descriptive vs. Normative Models	333
Deduction vs. Induction	335
<b>Deductive Reasoning</b>	<b>336</b>
Validity vs. Truth	338
Transitive Inferences Based on Linear Orderings	339
Evaluating Conditional Rules	342
<b>Heuristics of Human Judgment</b>	<b>346</b>
Similarity Judgments	347
Representativeness	350
Availability	355
Analogical Reasoning	357
Simulation Heuristic	360
Heuristics vs. Statistics	361
<b>Summary</b>	<b>361</b>
<b>Recommended Readings</b>	<b>362</b>
<b>CHAPTER TWELVE: Problem Solving and Creativity</b>	<b>365</b>
<b>Introduction</b>	<b>365</b>
Problem Solving: Basic Definitions	365
Problem-Solving Process: Overview	366
Well-Defined vs. Ill-Defined Problems	368
Problem Representations in Chimpanzees and Humans	370
<b>Process of Problem Solving</b>	<b>371</b>
Forming an Initial Representation	371
Planning a Potential Solution	375
Reformulating Problem Representations	382
Executing a Solution Plan	386
<b>Expertise in Problem Solving</b>	<b>387</b>
Expertise in Chess	387
Expertise in Other Domains	392
<b>Blocks That Hinder Problem Solving</b>	<b>394</b>
Problem-Solving Set	394
Functional Fixedness	396
Productive Thinking	398

<b>Analyzing Problem-Solving Behavior</b>	<b>399</b>
Protocol Analysis	399
Computer Simulation of Problem Solving	404
<b>Creative Thinking</b>	<b>408</b>
Talent	408
Creative Process	410
Problem Solving and the Creative Process	416
<b>Summary</b>	<b>417</b>
<b>Recommended Readings</b>	<b>417</b>
<b>CHAPTER THIRTEEN: Language and Hemispheric Specialization</b>	<b>419</b>
<b>Introduction</b>	<b>419</b>
Origin of Lateralization	420
Overview of Language Processing	421
<b>Perception of Speech</b>	<b>422</b>
A Look at the Speech Input	422
Consonant and Syllable Perception: Segmentation of the Speech Signal	424
Speech Perception and the Brain	426
Top-down Processing of Speech	428
Speech Perception by Computer	431
<b>Lateralization, Attention, and Action</b>	<b>432</b>
Split-Brain Patients	432
Hemispheric Control in Split-Brain Patients	435
Hemispheric Control in People with Normal Brains	437
Language and Handedness	438
<b>Hemispheric Development after Birth</b>	<b>440</b>
Hemispheric Specialization and Language Acquisition	441
Consequences of Atypical Organization	442
<b>Summary</b>	<b>443</b>
<b>Recommended Readings</b>	<b>444</b>
<b>CHAPTER FOURTEEN: Language and Its Acquisition</b>	<b>445</b>
<b>Introduction</b>	<b>445</b>
<b>Nature of Human Language</b>	<b>445</b>
Language Functions	445
Natural Animal Communication Systems	446
Conversations with Chimpanzees	448
<b>Language Structure</b>	<b>449</b>
<b>Language Acquisition</b>	<b>451</b>
First Speech Sounds	451
Making Sense of Adult Speech	452
Role of the Child in Language Acquisition	453
First Words	455
First Sentences	457
Invention of Syntax	458
Complexity of Adult Syntax	461
<b>Summary</b>	<b>462</b>
<b>Recommended Readings</b>	<b>463</b>

<b>CHAPTER FIFTEEN: Language Processing</b>	465
<b>Introduction</b>	<b>465</b>
<b>Language Comprehension</b>	<b>466</b>
Steps in the Comprehension Process	466
Lexical Access	467
Constituent Processing	467
Comprehension Difficulty	471
Comprehension and Prior Knowledge	473
<b>Reading</b>	<b>475</b>
Overview of the Reading Process	475
Dyslexia	477
<b>Aphasia</b>	<b>478</b>
Types of Aphasia	479
Anterior Aphasia	480
Posterior Aphasia	485
<b>Summary</b>	<b>487</b>
<b>Recommended Readings</b>	<b>488</b>
<b>BIBLIOGRAPHY</b>	<b>491</b>
<b>INDEX</b>	<b>544</b>