

## Interesting Books on Human Psychology

This selection is not intended to be balanced or objective, rather it represents both interesting and credible ideas about our minds and how we can be expected to respond to computers. The historical selections suggest ways in which people are similar, but the original authors make difficult reading. The current leaders selections represent several aspects of highly reputable modern ideas. The scholarly extensions contain advanced concepts which have grown out of the ideas in the previous selections.

### Historical

Sigmund Freud, *Psychopathology of Everyday Life*

*The Interpretation of Dreams*

*Three Contributions to the Theory of Sex*

*Civilization and its Discontents*

Less than 100 years ago, Freud introduced/invented the concepts of psychoanalysis, ego defense (repression, projection, intellectualization, regression, denial, sublimation), transference, Freudian slips, unconscious, consciousness as an organ of perception, and

id	unconscious, primitive self, pleasure principle
ego	partly conscious, ethical self, reality principle
superego	inner conscious, morality
libido	sexual energy

Carl G. Jung, *The Archetypes and the Collective Unconscious*

Jung introduced the ideas of psychological unity across humans, differentiated mental functions (thinking, feeling, sensation, intuition) and attitudes (extroversion, introversion) and subconscious archetypes (mother/father, anima/animus, persona/shadow, child, maiden, wise old man, self).

Jean Piaget, *Genetic Epistemology*

*The Child's Conception of the World*

*The Moral Judgment of the Child*

*The Construction of Reality in the Child*

Piaget introduced the idea that children (and adults) construct reality through assimilation (matching perception of experience to thought) and accommodation (matching perception of thought to experience). Knowledge is identical to action. Intellect develops through stages (sensory-motor, 0-2 years; concrete thinking, 2-11 years; abstract thinking, 11-15 years).

### Current Leaders in Psychology, Philosophy, and Computation

Jerome Bruner, *Actual Minds, Possible Worlds*

Understanding is always in context, meaning is always ambiguous. There is no reality independent of mental activity and symbolic language. We know the world and construct meaning through multiple perspectives, including emotion, culture, language, and stories.

Hilary Putnam, *Representation and Reality*

## Human-Computer Interaction

Mental states cannot be computational states. Meaning is always individually unique, interpretive, plastic, normative, social, interactive, and holistic. Symbols and languages are always ambiguous, vague, open, relative, and situated in a particular context. Truth is quasi-mythological and is not independent, bivalent or unique. Concepts depend on evolution.

Terry Winograd and Fernando Flores, *Understanding Computers and Cognition*

Design is the interaction between understanding and creation. Knowledge depends on individual interpretation and intuitive understanding rather than on logical deduction and conscious reflection. Language and interface are socially embedded, impossible to articulate/analyze, and conversational/interactive. Error is equivalent to non-obviousness, is an interpretation, and constructs positive information.

Imre Lakatos, *Proofs and Refutations: The Logic of Mathematical Discovery*

Even formal mathematics is situational, negotiated, informal, and completely non-rational. Mathematical knowledge grows through a cycle of conjecture, proof, identification of exceptions, redefinition of the meaning of proof, and redefinition of the conjecture. Facts are linguistic blindness. Proof, truth, consequence, counterexample, and criticism are inseparable.

Oliver Sacks, *The Man Who Mistook his Wife for a Hat*,

Clinical stories about how broken brains still construct a coherent reality.

### Scholarly Extensions

Julian Jaynes, *The Origin of Consciousness in the Breakdown of the Bicameral Mind*

Human consciousness is a recently learned process. Before we associated thoughts with ego, we associated them with the voice of the gods. We construct thinking, locate it in our heads, fill in holes to create an illusion of continuity and wholeness, invent "I" and "me" so that the story has a main character, and blind ourselves to the inconsistencies of our own cognitive invention.

William Thompson et al, *Gaia, A Way of Knowing*

Nature is made of processes rather than objects. The unique, autonomous individual is the primary organizational unity in evolution. Natural processes are structural couplings between unities/individuals. Every thought is inseparable from every other thought; every action is inseparable from the entire environment; every individual is unique. Organization comes from disorganization induced by chaos followed by reorganization.

Francisco Varela, Evan Thompson and Eleanor Rosch, *The Embodied Mind*

Thought is embodied action. Each sense has a different consciousness. The omnipresent mental factors are contact, feeling, discernment, intention, and attention. The principal activity of the mind is changing itself.

Tarthang Tulku, *Time, Space, and Knowledge*

Objects (solid things) are formed by our choice of a point-of-view. Concepts and beliefs are formed by placing our viewpoint in an opaque (unclear) space. Time is the location which enables experience. Knowledge is the appreciation of space and time.