Skill: Annotated Table of Contents

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At present, there are ~40 chapters varying from 1.5K-5.5K words, divided into five sections (including front-matter). As of mid 2024, all listed chapters are in a long draft form except parts of sections 4 and 5. Chapters in sections 0, 1, 2 and 3 are in second draft form. Current word length of the ms is ~150K words. Below, word length for each chapter is indicated by, ie '1K'.

1.6 Skill and 'higher cognition' 3.5K *Discusses skill with respect to the idea of abstracted, generalized or dematerialized intelligence.*
1.7 Postcognitivism - a primer 4.6K *Introduces a range of newer perspectives on cognition: embodied, enactive, situated, distributed and materially-engaged paradigms, and how they relate to Skill.*
1.8 Skill and the academy 3.7K *The commitment of the academy to know-that and the denigration/devalorisation of skill.*

2. **Towards a holistic neurophysiology.** *I survey historical and contemporary neuroscience research relevant to the question of skill, noting dualist and holistic approaches. Elucidates some of the challenges of weaving together an interdisciplinary argument across diverse fields.*

2.0 The phylogenetic perspective. 3.1K *Discusses emerging perspective of evolutionary neuroscience (Cisek, Pessoa et al) as a successor to non-scientific conceptions of, for instance, 'mental faculties'.*
2.1 Paleocognition 6.4K *Considers our cognitive capacities in anthropological-archeological context.*
2.2 Proprioception 4.9K. *The neurophysiology of proprioception – regarded here as the unacknowledged, fundamental sense - and its importance in skilled action and skill development.*
2.3 The fascinations of fascia 3.6K *Emerging understandings of anatomy and neuroscience of fascia.*
2.4 Active inference: prediction and representation 4.5K *This chapter surveys the emerging neuroscience of active inference, predictive processing, and the Free Energy principle.*
2.5 Neuroplasticity and Spinal Learning. 4.7K. *The motor-pools in the spine serve as intermediary sites between brain and body managing motor functions, in tight feedback with muscle innervations.*
2.6 Aphantasia – memory, imagery, mental rehearsal. 4.6K *Explores imagination with respect to sensory acuity and its relevance to skill.*
2.7 How do we learn a skill? 5.1K *This chapter probes how we know about our own body, how such awareness is developed, and what the nature of that knowledge is.*
2.8 Ecological validity and the white box 2.4K *Discusses laboratory experiments with respect to ecological validity (Neisser) and ethology. Kirsh's Epistemic Action as a case study.*

2.9 Towards a holistic neurobiology 4.1K. *Outlines proposal for a non-dualist neuroscience that does not separate brain and body. Critiques brain-chauvinism.*

3. **Cognitive ecologies of the atelier.** *Artisanal knowledges, intelligence in action. Cognitive dimensions of skilled practices. Anthropological and historical examples, including traditional and indigenous skill knowledges and what I call Industrial Crafts.*

3.0 Putting mind body and world together again, again. *This chapter binds what preceded it with what follows, discussing skill with respect to a neurophysiological conception of "organismic holism".*

3.1 Tools, skills, incorporation. 4.9K *Examines the bodily dimensions of tool use. Incorporation, prosthetics and peripersonal space. Heidegger's Zuhandheit, Bateson's 'blind man's stick'.*

3.2 Structured spaces and cognitive ecologies 5.2K *Explores the extended qualities of cognition in structured workspaces. Situated and distributed cognition, cognitive ecologies.*

3.3 Contingent representation: sketches, scores, working drawings. 2.4K *Considers various kinds of notational systems in the service of know-how - as opposed to the symbolic reduction of 'the world' to symbolic 'facts'.*

3.4 **Creativity, Hylomorphism and the dance of agency. 4.8K** ***Takes up Ingold's*** *critique of the idea that creative thought precedes creative act. Juxtaposes with generative emergence, process and performativity.*

3.5 Artisanal Knowledge. 4K *Historical discussion of the place of craft and artisanry wrt science and philosophy - draws on S.Schapin, P. Smith, etc. Tacit knowledge and the artisan community.*

3.6 Pacific seafaring and navigation 4.6K *Non-western case examples in the bodily dimensions of non-western knowledge systems. Wave piloting and stick charts.*

3.7 Teaching and learning skills. *2.3K Pedagogies of know-how, skill, and the place of skill-knowledge in pedagogy generally.*

4. **Skill among machines.** *This section discusses technological systems in which cognition (as well as physical work) is offloaded into machines and technologized environments. Contrary to conventional rhetoric, the continuity of (industrialised) automation from mechanical electronic to digital is emphasized.*

4.0 Machine tools and automation *Offloading cognition in cyborgian systems*.

4.1 Industrial Crafts 4K *Historical contextualization of mechanized artisanal trades that emerged in the industrial revolution. Examines the skill in precision metalwork*.

4.2 Cognitive ecologies on the shop floor. *The machinist's cyborgian umwelt* 5K

4.3 Born digital. *Discusses cognitive dimensions of digital cultures, from the perspective of embodied skill-building, changes in cognitive capacities in screenal, low-touch cultures*.

4.4 Skill in the digital. 4.5K *Inquires into the status of on-screen procedures and representations as tools, and the metaphorized nature of skills in representational environments. Embodiment in virtual worlds: virtual kinesthetics, virtual embodiment among avatars and 'non-player characters'. The virtualisations and dematerialisations of skills: CAD, MIDI, gaming, VR*

4.5 Models and Simulations 3.3K *Discusses the phenomenon of active simulatory environments as entirely representational environments, where design choices have been made with regard to salience and simplification (the map not being not territory)*.

4.6 STEM and digital cultures. 3.3K. *I addresses questions of pedagogy, and specifically issues around STEM pedagogy - and the attempts to address/redress perceived shortcomings, in what has come to be known as STEAM*.

4.7 AI, Intelligence and (the concept of) mind. *Discusses the relevance of the book to (the rhetoric of) AI, as rooted in dualistic notions of mind and brain, and the nature and location of, 'cognition'*

Epilogue - The ineffable. Embodied experience and academia. *1.5K A conclusion regarding communities of knowledge and deployment of language*.

5. End matter

5.0 Notes

5.1 References. *A comprehensive set of references is built for current draft, in Zotero*.

5.2 Index