

Occupational Knots

Our ability to create and share knowledge orally, written down on paper, and recently online, is to some extent due to the way we systematize it. Even if Karl Popper's epistemology of falsificationism shows that we can never know whether something is true, but only prove hypotheses as false, there is a pragmatic need to accept and apply what we consider as known. We create these systems from observations, into which further observations are fitted, sometimes more, sometimes less successfully, in which case a revision or overturn of the theory occurs. Thomas Kuhn extensively demonstrated how these shifts in paradigms take place in his 1962 book "The Structure of Scientific Revolutions".

Then there are other types of knowledge, ones that are embodied, that we do not even need to actively recall in order to apply them. In disciplines such as dance, this kind of knowledge is handled more implicitly. Whereas a move can certainly be taught, it only becomes a competency or in a wider sense knowledge when we internalize it through training. The moment we have learned to tie our shoes, we stop even to think about the fact that we once had to acquire this skill, but take it for granted. However, science often asks us to forget this embodied knowledge, and rather focuses on the cognitive type, which it attempts to generalize and make universally applicable.

In phenomenology, the body is seen as the medium through which we experience the world and create meaning, opposing the Cartesian division of body and mind, and unlike semantics, in which the material body has largely been ignored in the process of construing meaning, but theorized as constructed by language and text. Curiously, a call to reevaluate the concept of embodiment and our physical encounter with the world – despite or especially because of technological transformations – comes from scholars such as postmodern literary critic Katherine Hayles who is mainly known for her book "How We Became Posthuman" (1999). Hayles argues that "[i]nformation, like humanity, cannot exist apart from the embodiment that brings it into being as a material entity in the world; and embodiment is always instantiated, local, and specific."¹ In new phenomenology, similarly, the body is not understood as corpus, as shell we use to move in our surroundings, but rather as lived body that is not restricted to its physical borders constituted by the skin and penetrates the world outside as well. The lived body is never a finished object but always in the process of becoming in relation to the world, and acquires its notion of self and knowledge through the implicit memory that registers bodily experience. It is this implicit bodily memory of the lived body that helps us to orientate and that steers our behavior. Instead of looking back to the past from the present as the explicit cognitive memory does, the implicit memory takes past experience from back in time to the present and activates it in relation to the here and now. Phenomenologist Hermann Schmitz describes embodied memory with the example of a piano player, who does not need to consciously think about where the keys are that she needs to hit, but her body automatically feels and finds them.²

The epistemological question of how knowledge is created, systematized, and finally embodied is a recurring theme in Magnhild Øen Nordahl's work. Her new group of sculptures

¹ Katherine N. Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*, University of Chicago Press, Chicago, 1999, p. 49.

² Hermann Schmitz, *Der Leib, der Raum und die Gefühle*, Aisthesis Verlag, Bielefeld, 2007.

“Occupational Knots” is titled after a chapter in Clifford W. Ashley’s “The Ashley Book of Knots” (1944). The book contains nearly 4.000 practical knots, and the chapter Øen Nordahl refers to lists a variety of occupations from the archer to the yachtsman alongside recommendations on which nodes are most useful for whom. Further, the titles of each of the sculptures derive from Mathematical Knot Theory. In the 19th century, it was a common conviction that the universe consists of a substance called ether. Scientists developed a theory based on the assumption that atoms were knots in the fabric of the ether. By systematically listing all possible knots – so the theory went– the different types of matter could be explained. With the aim to establish a comprehensive tabulation system that would classify all substances, the mathematical physicists Lord Kelvin and Peter Guthrie Tait spent forty years of collecting and annotating knots. By the end of the 19th century, however, Knot Theory was proven wrong and replaced by new atomic models by J.J. Thomson and Ernest Rutherford, and later quantum physics after Max Planck and Niels Bohr. Nevertheless, since the 1980s, Knot Theory came into use again in certain fields of biology and chemistry. Today, it is applied to understand knotting phenomena in DNA and is a decisive tool in the construction of quantum computers.

Øen Nordahl’s “Occupational Knots” navigate at the interface of practical and theoretical knowledge. By applying knots according to their suggested usage, she investigates the potential of inherited occupational tools and of a discarded and recently rediscovered theory. While Knot Theory may not provide a universally applicable explanatory model apt to cover all areas, it could still imply an epistemological value for some. Moreover, the practical quality of knots when applied in material practices such as visual arts is interesting in the light of the increasingly outsourced manufactory of artworks with external production companies. This aspect of Øen Nordahl’s work calls to mind the anti-industrial craftsmanship advocated by the Arts and Crafts movement. Moreover, artistic research currently is a debated theme, often criticized for confining artists to a methodologically tight framework and blurring the borders of academia and applied practices. The subsequent question is whether the artist can become an expert on something, and what this expertise entails – themes that are present throughout Øen Nordahl’s work.

Eager to understand how the brain functions when we acquire knowledge, Øen Nordahl has been studying in the course The Cultural Brain at Karolinska Institutet throughout the academic year. Rather than accrediting any genius yielding artistic practice, she points to the underlying neurological processes. Creativity, improvisation, and the creation of (embodied) knowledge are demystified and the ways in which they manifest in the sculptural objects emphasized. More specifically, Øen Nordahl investigates the particular knowledge that is artistic knowledge, how it is applied, and whether it can be systematized and shared like other types of knowledge. By studying mathematical knots and applying nodes in her sculptures, she tests the boundaries of systematizations of knowledge – be they theoretical or practical. The intriguing tension of her work derives from this oscillation between imposing systematized rules from acquired knowledge, and experimenting with improvisation. The questions of what is known, of what quality this knowledge is, and whether it can be shared, constitute the terrain in which the project “Occupational Knots” is situated.

– Stefanie Hessler