

## 69. Skilled visions: between apprenticeship and standards

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The different types of visual knowledges that proliferate in professional, field and laboratory practices, force us to rethink concepts of distance and proximity: while technological mediation ensures the propagation of meaningful forms, professional apprenticeship constructs knowledge locally, through the training of expert eyes and hands.

In the last twenty years, ethnographies in scientific, professional and organisational contexts have investigated the spectrum of possible ways in which human activity is mediated by “cognitive artefacts” (Cole). On the other hand, it has been stressed how processes of education of attention (Ingold, Goodwin), involve multi-sensory experience and are intrinsic to the nature of skill.

This panel aims to explore vision in terms of processes of enskilment, highlighting how apprenticeship and artefacts mediate between the situated, tacit, skilful knowledge of individuals and of communities of practice (Suchman, Lave, Wenger), and the “metropolitan” and metrological nature of technological mediation such as mobile inscriptions (Latour).

Contributions should reflect on ethnography as a methodological asset for practice theory and for the current research on mind, perception and culture. Which processes of apprenticeship create identities in professional, scientific, educational, recreational or ritual contexts? Which forms of participant observation are needed to highlight them? Examples of visual training in high and low-tech environments, also in relation to the other senses, could highlight the cognitive styles and their impact on perception of image-production and image-management, (e.g. in the anthropology of architecture, in laboratories, hospitals, or institutions of learning). Ethnographies including relevant historical and epistemological perspectives are welcome.

Skilled vision. An apprenticeship in breeding aesthetics

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In order to introduce and in some ways limit the possible interpretations of my notion of “skilled vision”, I refer to my own ethnographic work with contemporary practitioners in the dairy breeding industry in northern Italy (*Social Anthropology* 2004, 12/1: 1-15). By skilled vision I do not mean a metaphor for knowledge. I do not refer to either ‘neutral *observation*’, nor to the cultural analysis of particular visual *representations*. Much care is given to analyse the concrete process of the education of attention, of engagement in practices (which can also involve image-making) and to the role of their products in an ecology of attention. I stress the role of context, of the social relationships and of the processes of apprenticeship that put a certain vision firmly *in place*, within a community of practice. Hence the aspect of *belonging*, and

of aesthetic *longing*, that the exercise of skilled vision may take on for the adept. I do not dispute the penetrative and dominant character that vision may have in various ways, but, pursuing the rehabilitation of vision in the anthropological agenda, I take into account the “vulnerability, unruliness, evanescence” of skilled vision (Schaffer, *Skilled Visions Symposium*, Cambridge 14/5/04) and the contested, collective, and distributed character of its practice and objects.

Learning within the workplaces of artists and the architects: making stories for drawings and writings

Learning within the workplaces of artists and the architects: making stories for drawings and writings

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By placing both artists' and architects' drawings within a network of sociotechnical relations, I challenge normative models of fine art and architectural practice that positions representations, illustrations and explanations of doing outwith of the actualities of the everyday. The problem is to discover how these representations are integrated into the course of situated actions within specific environmental contexts. As a means of comparing art and architectural knowledge traditions, I question how skilled practitioners learn and what role does memory like the bodies to which they belong, undergo continual generation and regeneration in the contexts of individual's life activities within an environment. This paper considers the difference, and the relation, between direct and indirect forms of communication within fine art and architectural practices. Referring to ethnographic materials from fieldwork in artists and architects workplaces collated between 1998 and 2004, I ask how learning within a situated context is mediated by stories and or drawing/ imaging skills. Specifically, I explore how speech, gesture, graphic expression, and written words all work together in the generation of meaningful action within dialogic contexts of interaction. In so doing, I highlight the conjunction of perception and action within artists' and architects' working practices and the role narrative plays in this process.

Templates and Maps in Learning to See: Chartres Cathedral and the London Underground as Examples of Performing Design

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Chartres and the London Underground Map are iconic examples of `good design`. A representationalist understanding of `seeing` that underpins many contemporary ontologies and epistemologies supports the notion of the `plan`, the blueprint, the design as something that directs the construction of a cathedral or the use of the London Underground. A performative approach by contrast reveals the ways in which we are `trained to see` Chartres and the Underground as homogeneous unities and supports an account of them as messy motleys emerging from communities of practice. The paper suggests holding these two approaches in tension in order to reflexively include the analyst's own learning to see in the construction of sociohistorical accounts of such design practices.

Apprenticeship and Expertise in Diagnostic Imaging

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Radiological diagnostic expertise is codified and texted (like many other kinds of biomedical knowledge) in accordance with metropolitan archives and transnational standards. But it is also propagated and developed in local settings, from the examples of charismatic teachers, according to rules of thumb and maxims of personal practice. In American teaching hospitals, the CT Reading Room is an important setting for exercise and development of radiological expertise. Trainees learn to recognize and classify abnormal morphologies at the elbows of mentors and at arms' length from images on the viewbox. But their work of image interpretation in this rather cloistered space is neither simultaneous nor concerted: reading is staged as a series of readings--sights and oversights--such that errors can be highlighted and capitalized upon, in a pedagogical theater of the "hotseat."

Additionally, frequent visits from nonradiologist colleagues interrupt workflow at the same time that they summon performances of particularized radiological testimony and judgment. Thus radiological vision is staged and taught as disjunct, subject to recurrent oversight and overrule, fraught with exception, and thoroughly entwined with rhetorics of expert witnessing--in service to a community of diagnostic effort that is both collaborative and agonistic.

Narrating brain scans: attention and directed perception

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Images of brains with colourful areas lighting up are a well-known outcome of functional brain scanning. These images serve several concurrent purposes. They are an integral part of the research process, since they allow for the representation of very large datasets in a visual illustration that may be explored dynamically. They are importance signs of evidence for those scientific papers which are the rationale of the research. Finally, they are also aesthetic objects, carefully tailored to look 'nice' both to the scientific insider and the scientific outsider. In none of these instances the images can be considered realistic photographs. Rather, they are to be seen as ideograms or sinnbilder in Ludwik Fleck's sense, that is, as particular carriers of meaning. But how do these images come to carry meaning in the first place? In this paper, I will examine how during the analysis of an experiment, the 'raw images' become embedded in a narrative. From the point of view of a junior researcher, this is a process of learning how to 'read' images. That is, it is an education of attention which through directed perception allows to 'see' the image as part of a larger narrative. This is a social process. Not only because the training takes place in a social environment, but more importantly because that narrative, which the pictures are going to be embedded in, need to take into account other narratives, which the picture could evoke in the imagined community of peers. This suggests that education of attention is a key process in establishing the borders of a scientific community.

Seeing and drawing: the role of play in making a scientific image

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The production of a modern image of the functioning brain involves a great many human processes as the data is analysed. Whilst the researchers retain the impression that what they do corresponds to the classic notion of a scientific experiment, they are also aware that to make the science 'work' they frequently have to adopt a number of more unconventional strategies of post hoc, and even ad hoc, manipulations. In particular, the final image, which serves as a condensation of a scientific fact, is often

co-produced through a struggle to 'see' something arising from the scan and a necessity to 'draw' something onto it. This paper will draw on ethnographic fieldwork within a specific group of researchers - from students to international experts - to highlight how these processes are treated as shared secrets in their knowledge production. Crucially, they do not appear to threaten the final validity of the claims made, but act as specialised tacit knowledge which actually legitimates their work.

The 'hall of mirrors': A certain way of seeing in art and immunology of the 70s'  
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Between 1965 and 1975 first artists and later immunologists dealt with the specifics of a 'hall of mirrors', a visual model used to explore the relation of the body self to the visual, distanced, public, represented, alienated body (Valie Export, Dara Birnbaum and Dan Graham).

Some years later Nobel prize winner Jerne published his challenging paper also using a model he called 'hall of mirrors' to explore the immune cells' cognitive abilities between the alien's presentation and representation. The immune self (which up till then was reacting but not acting) now did not emerge due to an alien but as a reaction to an image of the alien, followed by endless reflections of that image by the immune self, the alien in the midst of a hall of mirrors of the self, which is at this stage reflector and reflected. Thus the alien attained its 'meaning' by a pure representational process within. In this model for the first time an immune self could be made visible as related to the alien but emerging within, the self as a presentational deception and the alien as a representational deception.

We consider for the 70s: 1) the artist and scientist using a kinaesthetic model to better envision the self's relatedness to the alien 2) the lymphocyte (self) who does not react to an alien but to an alien which is endlessly reflected within and by the lymphocyte (self) itself.

'Handwaving Arguments': Knowledge Media and Professional Vision  
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'There is something which I cannot learn from textbooks' - this is a familiar utterance of experts in various professional fields - be it physics, computer science or design. There are two sides to this statement that are important for an anthropological approach to professional knowledge. The first is linked to concepts like 'situated cognition' that gained importance during the last twenty years. They underline the site-specificity of cognition, that to say its ecological quality, referring to specific traditions, social composition as well as the material features of the environment: how does a novice learn to see like an expert? The second point of reference for this presentation is the concept of knowledge media. The question addressed will be: What is it that makes visual thinking special in this context? And why is it that especially these forms of cognition are something that cannot be learned from textbooks? The presentation will refer to 15 years of experience in the field of physics, computer science and design.

Art and science collaborations: artistic renderings of science, and/or the development of new skilled vision?

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What can the vision of artists bring to scientific research? This is a question currently asked in practical and experimental ways in a number of collaborative research projects that bring together artists and scientists. In some cases, the value of the artist's input is clearly tied to their skill in the visual representation of already existing knowledge. In others, there is an agenda of working together, but eventually participants are expected to draw value from the collaboration back into specialised domains, and the representational practices specific to those domains. There is a third possibility: that the 'vision' of the artist and of the scientist combine in novel ways, producing innovative outputs which blur the boundaries between artistic and scientific knowledge. The latter possibility has a strong hold on the contemporary imagination. In all cases it seems there are a number of factors that structure both the interactions, and the possible outputs. These relate to notions of the person and their embodiment of particular kinds of skill, and also to the conceptual framework in which subjectivity and objectivity appear tied to various kinds of skilled practice. This paper will outline some of the conceptual and social background to current collaborative knowledge production, and consider the perceived value of various kinds of knowledge practice when they are placed in relation to one another.

