
HoST - Journal of History of Science and Technology
Vol. 13, no. 2, December 2019, pp. 60-85
10.2478/host-2019-0013

SPECIAL ISSUE
ANIMALS, SCIENCE AND TECHNOLOGY: MULTISPECIES HISTORIES OF SCIENTIFIC
AND SOCIOTECHNICAL KNOWLEDGE-PRACTICES

Measuring ephemera: finding the “qualitative” in Qualitative Behaviour Assessment as a “whole-animal” science of animal welfare

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Abstract: Qualitative Behaviour Assessment (QBA) emerged in the early 2000s as a way of evaluating the expressive quality of animal behaviour and emotions using qualitative descriptors, such as “playful” or “depressed.” Developed in response to the scepticism of behaviourist attitudes to animal emotions, QBA is now an internationally respected methodology, if still contentious in some circles for what is perceived as an “anthropomorphic” approach. This article results from a research period spent with a UK university laboratory team who were developing species-specific QBA descriptors for the welfare assessment of laboratory mice. The case of the search for a “calm mouse” illuminates the difficulties sometimes encountered in finding the “qualitative” in QBA. It suggests that welfare assessments of animals are epistemologically multiple. Through a historical account of QBA’s emergence, drawing on Cristina Grasseni’s concept of an “ecology of practice,” I argue that different modes of perceiving animal behaviour have emerged through socially and historically inscribed practices.

Keywords: Qualitative Behaviour Assessment; animal sociology; laboratory animal welfare science; perception; scientific language

Introduction

Sitting together at her computer, animal welfare researcher Maria was demonstrating to me the difficulty she had had in producing footage of a “calm mouse” as required for her PhD project. Multiple windows opened of glossy black mice darting around their empty filming cages, rearing up to sniff unfamiliar air, pressing tiny pink paws against the glass and being gently pushed back by a blue-gloved hand as they hauled themselves over the edge. Maria opened up one of her best approximations – a crouching mouse rubbing its paws briskly over its eyes. “It’s grooming,” she said. “It’s cleaning itself. So it’s not really stressed.” The mouse was indeed grooming, but to my eyes it was at a strangely agitated, frantic speed. I too had heard that an animal with time to groom must on some level be at ease with its situation, but I wondered, if this was not scientific creed, whether we would consider this animal at all “calm.”

The search by Maria and her colleagues for the elusive “calm mouse” is one example of the difficulty that qualitative assessment posed to a laboratory animal welfare team as they sought to develop a Qualitative Behaviour Assessment tool for laboratory mice. Qualitative Behaviour Assessment (QBA) is an animal welfare methodology developed by Professor of Animal Science Francoise Wemelsfelder, whose distinctive work, informed by training in philosophy and social anthropology, is of increasing interest in animal studies. First developed as a tool for assessing the welfare of farm animals, but now used in a range of species and contexts around the world, QBA asks welfare inspectors to qualitatively assess the animal on a series of “common sense,” emotionally resonant indices like “playful” or “depressed,” indicators that conventional science would usually reject as too “subjective.” In a second, statistical phase it can quantitatively determine the extent of observer agreement, or map the progression of the animal’s welfare across time. The stated purpose of QBA is to use the richness and subtlety of qualitative language to acknowledge and foreground the experience of the animal *as a subject* in all its liveliness, agency and irreducibility.

In this article I use the contemporary case of the search for a “calm mouse,” a controversial moment in the team’s project, as a place from which to explore the historic epistemological tensions between “objectivist” practices of animal welfare expertise and qualitative, affective assessments. The latter is of increased interest to scholars concerned with the ethical potential of what Donna Haraway calls “response-ability” in laboratory facilities. However, animal welfare professionals’ skills in empathetic, intuitive and qualitative knowledge practices are often assumed to be given with their roles, more or less constant in their character, and are rarely parsed in more depth. This study suggests, however, that such “tacit knowledge” may be epistemologically diverse, its perceptual competencies shaped by ways of knowing with specific socio-political histories. I begin by situating this article in the wider literature on phenomenological perception and “cultures of care” in the laboratory, before explaining how QBA’s method works and how its qualitative approach differs from conventional practice.

Turning to the project at Moor University, I then explore the significance of the team's search for a "calm mouse," where two animal welfare professionals struggled to distinguish between qualitative and "objectivist" assessments of laboratory mice when developing the QBA tool. The second half of the paper uses a historical account of the development of QBA between 1975-2001, in the context of the more general growth of animal welfare science, to make QBA's fundamental epistemological and ontological challenge to conventional animal welfare assessment clear. It draws on the work of Cristina Grasseni and others to argue that objectivist animal welfare science and QBA stem from different "ecologies of practice" which have shaped different perceptual skills. I conclude that QBA offers far-reaching possibilities for making the emotional subjectivities of mice more available in an affective and responsive practice of care, but that more significant cultivation of perceptual skills may be needed to support knowledge practices like QBA if they are not to be subsumed by the considerable "objectification pressures" inherent in conventional scientific training.

"Skilled vision" in "cultures of care"

That people apparently perceive the same phenomena differently has long been a subject of fascination for scholars of embodiment. Maurice Merleau-Ponty argued that what we perceive is dependent on *how* we use our senses in an active process of attunement to our surroundings: "The gaze gets more or less from things according to the way in which it questions them, ranges over or dwells on them."¹ Phenomenologists like Tim Ingold have consistently pointed out that acquiring a perceptual skill is not the simple accumulation of information, transferred representationally from teacher to apprentice. Instead, he argues, the process is akin to James Gibson's notion of an "education of attention,"² the embodied attunement and alignment of the whole perceptual system to new phenomena, learned through practical, social activity in the environment, whereby the senses are directed by others to what is considered relevant. Ingold argues that these new sensory orientations are gradually internalised by the student in an active and relational process of imitation and improvisation until they become predispositions.³

Pierre Bourdieu alludes to the *historicity* of perceptual abilities when he talks about this incremental "sedimentation" of the body's *habitus*, in which embodied habits and gestures are learned through participation in temporally contingent social structures, gradually becoming

¹ Maurice Merleau-Ponty, *Phenomenology of Perception* (London: Routledge & Keegan Paul Ltd, 1962), 135.

² James Gibson, *The Ecological Approach to Visual Perception* (Boston: Houghton Mifflin, 1979), 274.

³ Tim Ingold, "From the transmission of representations to the education of attention," in *The Debated Mind: Evolutionary psychology versus ethnography*, ed. Harvey Whitehouse, 113-153 (Oxford: Berg, 2001).

the basis of further perception and intuitive action.⁴ Meanwhile Jean Lave and Etienne Wenger emphasise the role of social and professional identities in this process, arguing that learning to perceive is only a peripheral effect of the emerging social identity of the student as they socially adapt themselves to a “community of practice,” which is “a set of relations among persons, activity and world, over time and in relation with other communities of practice.”⁵ Such communities are constitutive of knowledge, because they define the possibilities and resources for learning.

In the limited literature on the perception of animals, the work of Cristina Grasseni stands out for the way in which she usefully extends this idea of a “community of practice” into an “ecology of practice,”⁶ a concept which suggests a more posthuman inclusion of nonhuman entities such as inscriptions, artefacts and cows. Her comparative study of elite cattle breeders and ordinary cattle farmers in Italy explores how the “skilled vision” of different experts develops through this ecology of practice.⁷ Becoming a specialist breeder, she argues, involves learning to discipline and shift the senses towards certain features imbued with certain values. The senses move from an aesthetic appreciation of physical robustness, muscular fitness, and local heritage in farming, to an assessment which can, in a glance, summarise a quantitatively measured deviation from an ideal blueprint of a maximally productive breed. This skilled vision comprises other knowledge practices such as statistics and genetics, social relationships with experts, and uses various visual objects and inscriptions that are exchanged among practitioners and help train the eye to align with shared practices. One learns to identify and check one’s own indiscriminating observations in line with this ecology and shift them in more appropriate directions, so that “one never simply looks. One learns how to look.”⁸ Meanwhile the role of language as a mode of visual education in scientific communities has been explored by Eileen Crist, who has shown that the discursive use of language in studies of animal behaviour has had a profound and enduring influence on scientific perceptions of animal subjectivity. Whereas the rich qualitative language of the naturalists like Darwin assumed animals’ behaviour was “authored,” already inherently meaningful for the animal, the technical language of classical ethology which later subsumed it performed, she says, a “mechanomorphism” of animals, turning them into objects passively acted upon by external forces. The use of language is not simply a neutral matter of disciplinary conformity, she

⁴ Pierre Bourdieu, *The Logic of Practice* (Cambridge: Polity Press: 1990).

⁵ Jean Lave and Etienne Wenger, *Situated Learning: Legitimate Peripheral Participation* (Cambridge: Cambridge University Press, 1991), 98.

⁶ Isabelle Stengers coined the same term when discussing knowledge-practices, but Grasseni’s usage is separate and rather different in meaning.

⁷ Cristina Grasseni, “Skilled vision. An apprenticeship in breeding aesthetics,” *Social Anthropology* 12, no. 1 (2004): 41-55.

⁸ Grasseni, “Skilled vision,” 47.

argues, but something which “actively configures different ways to witness animal behaving.”⁹

These insights into the training of perception have particular contemporary relevance for Science and Technology Studies (STS) scholars of animals in science, since in recent years there has been an increasing interest in how animal welfare judgements are shaped by sensory perceptions. Donna Haraway’s work on animal laboratories has been influential here. She called for ethical questions involving utilitarian calculations to be bracketed in favour of attention to “response-ability” in judgements about animal wellbeing. “Response-ability” is the carving out of relational spaces in everyday practices which enable the capacity for reciprocal curiosity, attention and communication within interspecies relationships. What is needed on the ground to facilitate this, she argues, are “imaginative politics of the sort that rearticulates the relations of minds and bodies,”¹⁰ making embodied, affective judgements more available. Pre-standardised checklists of welfare indices, she says, should be redundant here: the response must be live, improvised and remain open. Creating working environments which foster this “response-ability” is an important task, creating more ethically respectful relationships and more fulfilling lives for the animals concerned.

Her argument inspired a new wave of debates about the possibilities of more “response-able,” affective cultures of care:¹¹ that is, how empathetic attitudes and innovations, going above and beyond compulsory welfare procedures, might be cultivated in laboratory facilities. Many accounts make broad distinctions between the objectifying knowledge practices of medical research scientists and those of animal care professionals, who are assumed to have affective and intuitive relationships with their animals. However, the role that objectivist science plays in animal welfare professionals’ judgements tends to be under-explored. For example, Beth Greenhough and Emma Roe are interested in how the “somatic sensibilities” (following Ralph Acampora) of laboratory animal vets and technicians might be cultivated for use in other contexts.¹² “Somatic sensibilities,” they say, rely on extensive familiarity with the animals, the use of embodied non-verbal communications and a “critical anthropomorphism” that assumes the shared sentience of human and animal bodies. However, whilst they acknowledge that “somatic sensibilities” might be mediated in some ways, I believe that further attention to the *specificities* of these sensibilities would reveal them to be more diverse than is suggested, and perceptually

⁹ Eileen Crist, *Images of Animals: Anthropomorphism and the Animal Mind* (Philadelphia: Temple University Press, 1999), 89-90.

¹⁰ Donna Haraway, *When Species Meet* (Minneapolis: University of Minnesota Press, 2008), 89.

¹¹ See Gail Davies, Beth Greenhough, Pru Hobson-West, and Robert G. W. Kirk, “Science, Culture and Care in Laboratory Animal Research: Interdisciplinary Perspectives on the History and Future of the 3Rs,” *Science, Technology and Human Values* 43, no. 4 (2018): 603-621.

¹² Beth Greenhough and Emma Roe, “Ethics, space and somatic sensibilities: comparing relationships between scientific researchers and their human and animal experimental subjects,” *Environment and Planning D: Society and Space* 29, no. 1 (2011), 47-66.

shaped by more or less reifying knowledge practices. For example, some of the examples of animal welfare assessment techniques that they cite, such as preference testing, are based in strongly objectivist science rather than embodied familiarity or “critical anthropomorphism.” Given the wider interest in ethical practices of care, it would be interesting to consider how these knowledge practices and sensory, perceptual capacities are shaped: rooted, perhaps, in diverse socio-political imperatives that have organised the senses in different ways.

Qualitative Behaviour Assessment is thought-provoking in this context because it can be regarded as a formalised attempt to cultivate the kinds of “response-ability” or “somatic sensibilities” often considered intrinsic to more ethical human-animal relationships in the laboratory. The deployment of qualitative, emotionally resonant language, foregrounding the subjectivity of the animal observed, is the methodological tool through which this is achieved. Following its implementation in situ reveals QBA’s distinctiveness from conventional animal welfare assessment, and raises the question as to whether it is rooted in “ecologies of practice” which “educate the attention” differently. Moreover, it is an opportunity to explore a methodology which has become of increasing interest in animal studies, appreciated for the way in which Wemelsfelder explicitly endorses the search for what she calls the animal’s “perspective” in animal welfare assessment. The close resemblance of her theoretical writings to feminist arguments about “situated knowledge” and anti-reductionist accounts of nature leads Erica Fudge, for example, to argue that her work presents a substantive challenge to mechanistic, modernist forms of relating to farm animals.¹³ QBA’s qualitative, interpretive methodology, an approach more often associated with the social sciences, has also attracted interest from multi-species ethnographers.¹⁴ However, to date there has been no in-depth analysis of QBA from a sociological perspective. Exploring its tensions with mainstream animal welfare science, and how these play out in practice, may enable more informed perspectives on its aims and objectives.

In what follows, I will describe the difficulty that some members of the laboratory animal welfare team faced in operationalising QBA’s qualitative concepts. A historical analysis reveals why finding a “calm mouse” in the context of a laboratory animal welfare assessment, steeped in the traditions of objectivist science, can prove such a fraught task. I begin by outlining my own methods before explaining how QBA works.

¹³ Erica Fudge, *Quick Cattle and Dying Wishes: People and their Animals in Early Modern England* (Ithaca, Cornell University Press, 2018), 236-242.

¹⁴ Nicky Charles, Mara Miele, Rebekah Fox, Harriet Smith, and Francoise Wemelsfelder, “Shaping Inter-species Connectedness: Research Summary,” <https://warwick.ac.uk/fac/soc/sociology/research/currentresearch/interspeciesconnectedness/summary/> (accessed May 5, 2019).

Methods

Fieldwork for this case study was primarily conducted at an anonymised UK animal research facility, referred to here as “Moor University,” between 2017 and 2018. I entered the project approximately one year into its development in and followed its progress over another year.

Fieldwork at the Moor University site included three interviews with animal welfare researcher and lecturer Howard, five interviews with his PhD student Maria, who led on the QBA project, and one team meeting together with Francoise. This was to learn about the relevance for QBA in the research facility, the process of its development and any challenges that emerged. Interviews with ten colleagues of Howard and Maria, who were involved in the project at different stages, helped me gain insight into the kinds of intuitive knowledge that QBA purported to harness and to understand more about the world into which the team hoped to introduce QBA. These participants included laboratory animal vets, senior professors in laboratory animal welfare science, animal technicians, and students. Each interview lasted 60-90 minutes. I also conducted one week of multi-species ethnographic work, participating in QBA assessments and observing the piloting of QBA on live laboratory mice with Maria and the technicians. Throughout the project there was a particular emphasis on sensory methodologies, where ethnographic encounters were worked through a wider range of the senses such as smell, sound, and embodied interactions. In interviews, close attention was paid in the analysis of data to how sensory information shaped participants’ knowledge practices, and vice versa.

Francoise Wemelsfelder was interviewed three times at Scotland’s Rural College, from where she was acting as external consultant to the Moor University team. She was asked about her journey through animal welfare science, the early development of QBA and its contemporary significance. In addition, I read a selection of her published papers between 1997 and 2018 as well as material on general animal welfare science from the 1970s to the early 2000s.

All research was approved by the University of Manchester, and participants signed informed consent forms before research began. Names have been changed, and job titles deliberately generalised. It was mutually decided with Francoise Wemelsfelder that, as the sole developer of QBA, she could not feasibly remain anonymous. Therefore she has pre-approved certain sections of her transcripts from which I wished to directly quote.

How Qualitative Behaviour Assessment works

QBA's founding methodology asserts that humans are already inherently skilled at making sense of an animal's emotional expression through its body language,¹⁵ but that this ability is limited by the mechanistic, reifying epistemology of objectivist science. Wemelsfelder believes that qualitative, linguistic indicators are better able to capture and integrate the shifting, dynamic, unfolding patterns of an animal's emotional expression, and she therefore asks scientific assessors to use the kinds of words typically used by a non-expert public such as "playful" or "depressed." Qualitative language therefore does the labour in what James Gibson would call "the education of attention."¹⁶ Using these words as indicators aims to make animals' emotions visible and return the animal in all its liveliness and immediacy to the foreground of welfare assessment. The aim is to complement, rather than replace "objectivist" assessment, and give physiological indicators more meaning.¹⁷

Here the animal's overall *style* of behaviour becomes relevant, rather than simply its *facts*. Wemelsfelder argues that qualitative assessment is a "whole-animal" approach,¹⁸ essentially a far more integrative process than conventional animal behaviour assessment, which tends to separate and isolate aspects of behaviour for the purpose of measurement. The "whole animal," however, is not where only the largest units of behaviour are identified, but where small details, which otherwise might be considered incidental, are also noticed and assimilated. She gives the example of a ewe separated from her lamb, who "will walk about with her ears pricked up, stopping frequently to look around, bleating loudly, all the while appearing agitated, anxious and distressed."¹⁹ Qualitative assessment therefore captures shifting details in the lamb's expression in the context of an ongoing temporal flow. It can also integrate the situational context as interpreted by the observer (e.g. a missing lamb) which might otherwise not be incorporated into data collection. In short, qualitative behaviour is inherently *meaningful*, and Wemelsfelder believes that qualitative descriptors produce a *more direct* observation of the animal's *experience*. This helps assessors "experience the animal's body language as a

¹⁵ Françoise Wemelsfelder "The Scientific Validity of Subjective Concepts in Models of Animal Welfare," *Applied Animal Behaviour Science* 53, no. 1 (1997): 75-88, on 82.

¹⁶ Gibson, *The Ecological Approach to Visual Perception*, 274.

¹⁷ Françoise Wemelsfelder, "A science of friendly pigs...Carving out a conceptual space for addressing animals as sentient beings" in *Crossing Boundaries: Investigating Human-Animal Relationships*, eds. Lynda Birke and Jo Hockenhull, 225-251 (Boston & Leiden: Brill, 2012), 243.

¹⁸ Françoise Wemelsfelder, Tony E.A Hunter, Michael T Mendl, and Alistair B Lawrence, "Assessing the 'whole animal': a free choice profiling approach," *Animal Behaviour* 62, no. 2 (2001): 209-220, on 218.

¹⁹ Françoise Wemelsfelder, Edward A. Hunter, Michael T. Mendl, and Alistair B. Lawrence, "The spontaneous qualitative assessment of behavioural expressions in pigs: first explorations of a novel methodology for integrative animal welfare measurement," *Applied Animal Behaviour Science* 67, no. 3 (2000): 193-215, on 194.

communication they were attempting to understand (i.e. getting to know someone) bringing them closer to the animal in the process.”²⁰ The process is thus relational and affective, enveloping both assessor and animal in meaningful iterative improvisations between subjects in a way that closely resembles Haraway’s notion of “response-ability.”²¹

A contemporary excerpt from our interview makes the importance of this distinction clear, referencing the need to be sensible to subtle levels of embodied tension or flow that change the meaning of more obvious behaviours. She says:

An animal can be content or relaxed in a million different ways, you cannot really define what contentment or any other expression looks like in any specific physical way (...) It’s fundamentally the whole animal. So you can be incredibly active and be content and relaxed. You can have an animal that’s very still, yet you can just see, it’s just quivering with fear and tension.²²

In QBA, an assessor typically scores their interpretation of the meaning of an animal’s demeanour using a pre-defined list of approximately twenty qualitative terms such as “curious” or “depressed.” They are asked to work quickly and not to worry about imprecision, which is why an undivided visual analogue scale is used. The list contains deliberately overlapping, rather than mutually exclusive concepts, to allow for uncertainties and variations.

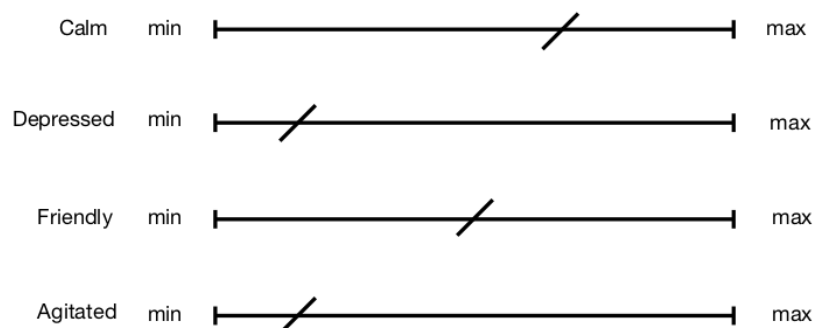


Figure 1 - An example of an extract from a QBA score sheet. The marks can be measured in millimetres from the minimum point for further quantitative analysis. Author’s own image.

²⁰ Wemelsfelder, “A science of friendly pigs,” 240.

²¹ In some of her writing Wemelsfelder refers to a behaviour “style” which seems not to be fully captured by the concept of integration. It is perhaps worth bearing in mind other aspects of qualitative movement. Rudolf Laban for example argued that movement consists not only of its bare facts, but of “motion factors.” He defined these factors as “weight” (the level of force behind the movement), “space” (its direction), “time” (its speed) and “flow” (the level of tension in the body as it is performed). See Rudolf Laban, *The Mastery of Movement* (London: MacDonald and Evans, 1971), 22.

²² Francoise Wemelsfelder (Professor of Animal Science), interviewed by the author, January 26, 2018.

Using a fixed list helps compare animals across different systems of production or over time. However, each species-specific list has been developed and validated separately, involving a lengthy period of development. In the first instance, participants are asked to collect video footage of a full “expressive repertoire” of behaviours. Recently, Wemeslfelder has begun to ask participants to use a two-dimensional graph of behaviour along the axes of “positive-negative mood” and “low to high energy” to help with this process, as shown below:

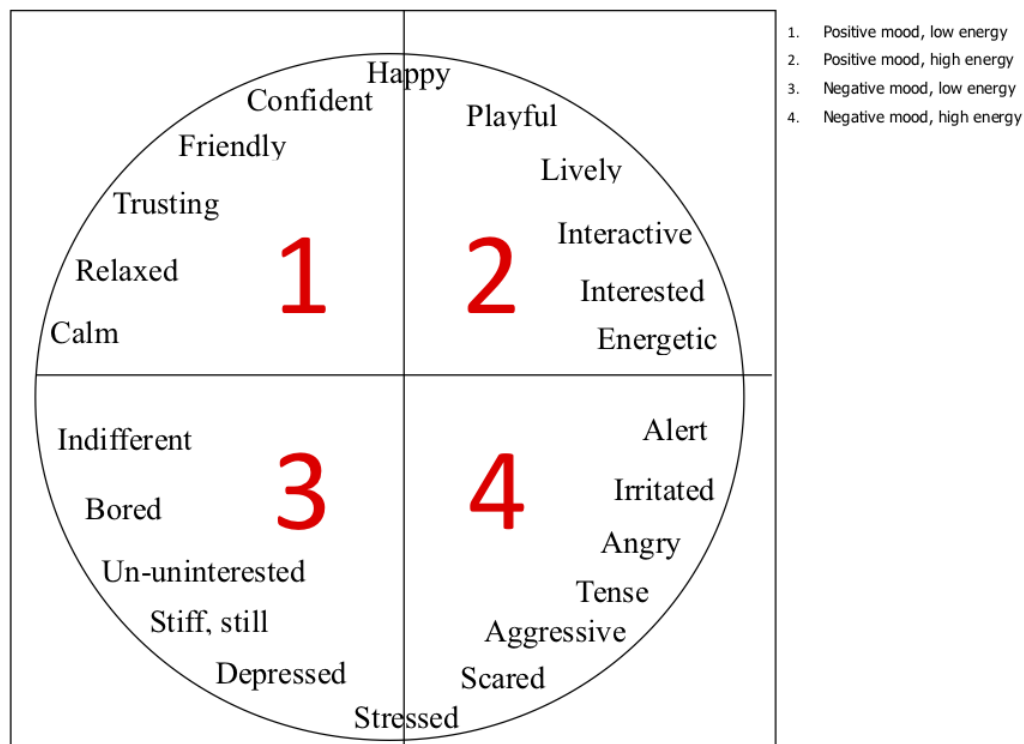


Figure 2 - The “quadrant” system for helping participants gain appropriate video footage (as yet unpublished). The words are given as examples of typical emotions. Reproduced with permission.

The principle aim of using these quadrants, conceived as a broadly universal set of qualitative affects, is to map out a “behavioural repertoire” that is comprehensive enough for the next stage of development, not omitting important, but easily overlooked emotions, such as boredom.²³

These short videos are then shown to a group that includes experts in that species, who are

²³ Fleming et al. note that Free Choice Profiling alone can result in missed key aspects of behaviour which is why fixed term lists are of an advantage. In conversation Francoise noted the same advantage of using a quadrant system. See Patricia A. Fleming, Taya Clarke, Sarah L. Wickham, Catherine A. Stockman, Anne L. Barnes, Teresa Collins, and David W. Miller, “The contribution of qualitative behavioural assessment to appraisal of livestock welfare,” *Animal Production Science* 56, no. 10 (2016): 1569–1578, on 1574.

asked to independently describe the emotional demeanours of those animals in a process called “Free Choice Profiling.”²⁴ The words they choose are then analysed with the aid of a statistical methodology known as General Procrustes Analysis (GPA). GPA is able to ascertain statistical dimensions of agreement across similar descriptive terms, even though the participants have freely chosen their own words.²⁵ What emerges from the analysis are multiple *strings* of similar emotionally descriptive words chosen by the participants, such as *playful-happy-curious*; or *depressed-lethargic-tired*, the outcome ideally demonstrating that participants have agreed on the general dimension of that animal’s emotional expression.

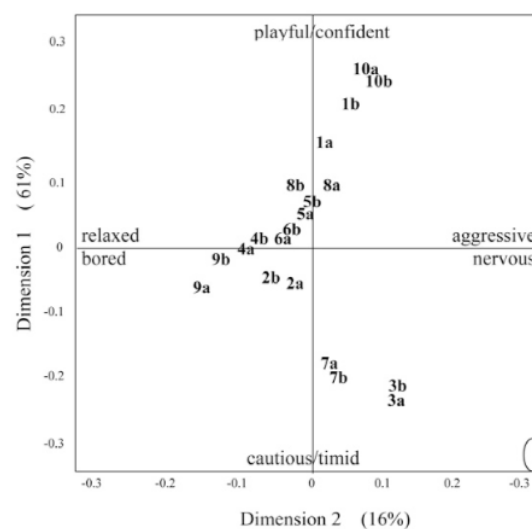


Figure 3 - Dimensions of pig behaviour as scored by observers. Numbers denote the individual pigs observed.²⁶ Reproduced with permission.

Another process, too extensive to explain here,²⁷ takes place to refine the list into approximately twenty terms, and then the reliability of this list is typically tested using blind observers and a control treatment. Over the years, multiple QBA assessments in collaboration with other scientists have demonstrated good inter-observer agreement on animals’ emotional expressions,

²⁴ Described in Wemelsfelder et al., “Assessing the ‘whole animal,’” 211.

²⁵ Described in Wemelsfelder et al., “The spontaneous qualitative assessment,” 198.

²⁶ F. Wemelsfelder, A. E. Hunter, E. S. Paul, and A. B. Lawrence, “Assessing pig body language: Agreement and consistency between pig farmers, veterinarians, and animal activists,” *Journal of Animal Science* 90, no. 10 (2012): 3652-3665, on 3660.

²⁷ Described in Claire Phythian, Eleni Michalopoulou, Jennifer Duncan, and Francoise Wemelsfelder “Inter- observer reliability of Qualitative Behavioural Assessments of sheep,” *Applied Animal Behaviour Science* 144, no. 1–2, (2013): 73–79, on 75-76; Michaela Minero, Emmanuela Dalla Costa, Francesca Dai, Leigh Anne Margaret Murray, Elisabetta Canali, and Francoise Wemelsfelder, “Use of Qualitative Behaviour Assessment as an indicator of welfare in donkeys,” *Applied Animal Welfare Science* 174 (2016): 147-153, on 149.

and good correlations with other more conventional methods of assessment,²⁸ and QBA is now used globally in multiple contexts of animal welfare assessment. Critics, however, accuse QBA of vulnerability to observer bias and unreliability, and not all papers have supported inter-observer agreements or correlations with other measures.²⁹

The collection of video footage, therefore, determines the outcomes of all other processes. However, it is dependent on the prior identification by the researcher of four main “quadrants” of behaviour. Identifying these expressivities *already* requires a certain kinaesthetic attunement to the shifting multiplicities of “whole-animal” expression, and to the “style” of the animal’s behaviour rather than its “facts.” In the next section I argue that this qualitative attunement to animals requires a learned sensory and empathetic attention which may not always be easy to achieve.

QBA and the “calm mouse”

The reason for the development of a QBA tool at Moor University was that animal science PhD student, Maria, assisted by her supervisor Howard, was developing and validating a new laboratory mouse welfare protocol as a refinement for the ad-hoc, locally variable practices typically carried out across facilities. QBA was to form a “psychological” welfare assessment tool but had not as yet been developed for use in mice, and so needed to be worked up from scratch. Both Maria and Howard were fascinated by the potential of QBA. For Maria it was a means of incorporating the emotional welfare of the animal in what she saw as a scientifically rigorous way. She liked the immediacy of its language and its intuitive approach. For Howard, QBA had held a long fascination since his student days. He agreed with Françoise that many people were “innately” very good at interpreting animals’ emotions, if allowed to be, and wondered if using one’s intuition would both be more pragmatically efficient, and also mitigate the risk of over-reliance on pre-standardised indicators:

If you’re trying to assess the welfare of the animal, that assessment of welfare is only as good as the indices you have (...) If you’re using indices to assess the welfare of a laboratory rat, and you are missing a reasonably good index of pain, you might score that animal’s welfare to be better than it is, because you’re not

²⁸ As explored in a review of the literature: Fleming et al., “The contribution of qualitative behavioural assessment.”

²⁹ Donald Broom and Andrew Fraser, *Domestic Animal Behaviour and Welfare* (Oxfordshire: CABI, 2015), 77-78; E. A. M. Bokkers, Marion de Vries, Icmá Antonissen, and I. J. M. de Boer, “Inter- and intra-observer reliability of experienced and inexperienced observers for the qualitative behaviour assessment in dairy cattle,” *Animal Welfare* 21, no. 3 (2012): 307-318; F. A. M. Tuytens, S. de Graaf, J. L. T. Heerkens, L. Jacobs, E. Nalon, S. Ott, L. Stadig, E. Van Laer, B. Ampe, “Observer bias in animal behaviour research: Can we believe what we score, if we score what we believe?” *Animal Behaviour* 90 (2014): 273-280.

able to effectively score pain. You're less likely to do that with QBA, because you're not confined by a set of indices. You're just confined by what you think.³⁰

In setting what Haraway called “preset taxonomic calculation”³¹ against more intuitive and improvised judgements, Howard demonstrates a shared interest with STS scholars like Davies et al.,³² who are themselves attending to how such ethical “response-abilities” might be cultivated and who have also identified an increasing concern with local “cultures of care” in laboratory professionals. He also establishes his own alignment with the logic of QBA. This is significant because it demonstrates that both Howard and Maria are willing to embrace qualitative assessment in principle.

Under the guidance of Howard and the animal technicians, Maria, whose own experience with laboratory mice was limited, began using the four quadrants to build a video collection of the “expressive repertoire” of laboratory mice, collecting archive footage and also filming the mice herself. She found it relatively straightforward to find mice in “negative mood” quadrants 3 and 4, since post-procedural mice were often filmed for analysis, and prior knowledge of the given procedures validated what she saw. However, finding examples of mice in the “positive mood/low energy” quadrant 1 (a “good, calm mouse”) proved far more difficult. For a start, the very process of exposing and filming the mice caused them stress, something she tried to offset with weeks of habituation. Secondly, the vigorous, industrious tempo of the mice, constantly on the move, confused the category of “positive, low energy.” How could “calm-ness” be identified in an animal naturally so active?

It was difficult for me trying to find a mouse that is ‘good, calm’, in that quadrant? Because (...) in my perception, a good calm animal is just still, like, quiet, just sitting there, doing nothing (...) But for mice, they never rest.³³

A “good, calm” animal in quadrant 1, therefore, was still identified with the *facts* of its behaviour, i.e. “just sitting there, doing nothing,” rather than with the *style* of its behaviour: with what quality that action was invested, through attention to multiple small changes in bodily tension, the relative speed of its movements, its willingness to engage with its surroundings and so forth. At first, this was attributed to the mere *difficulty* of distinguishing calmness in such a quick animal. But as the research progressed, the discourse increasingly hardened: there was, the team came to believe, *no such thing as a calm mouse*: “I mean there is no calm, like, quiet (...), mouse (...) because the mice are never still! If they are like that it’s because they are sick or in pain.

³⁰ Howard (pseudonym) (Animal Welfare Researcher and Lecturer), interviewed by the author, December 12, 2017.

³¹ Haraway, “When Species Meet,” 70.

³² Davies et al., “Science, Culture and Care,” 612.

³³ Maria (pseudonym) (Doctoral Animal Welfare Researcher), interviewed by the author, December 12, 2017.

Or sleeping.”³⁴

The fact that there was *no such thing as a calm mouse* came to challenge the universality of Francoise’s quadrant system. Quadrant 1, Maria came to believe, was missing, and did simply not apply for mice. Indeed, the very possibilities of mouse subjectivity were re-evaluated. Howard agreed, to the extent that when later, statistical results arrived which demonstrated observer disagreement on the “energy” levels of the mice, this for him demonstrated *more validity* than an outcome which showed agreement:

The energy was always going to be difficult because mice are energetic, and unless you have a really sick, debilitated mice, we don’t see a low energy animal. So in a way I was pleased that that actually came out in the (statistical) analysis (...) I thought, that actually makes sense in relation to mice, and I think that makes it more valid, because it actually represents what you physically see with mice, rather than being an artificial artefact.³⁵

Howard’s agreement with Maria here is interesting, because unlike his student he was highly experienced with laboratory mice. This suggests that the inability to spot a “calm” mouse was less to do with familiarity or expertise per se, but was the result of a learned way of seeing.

In the end, Maria deferred to established scientific indicators and submitted several videos of “grooming” mice to fulfil the “positive mood, low energy” quadrant. It was only much later in the project that Maria realised the mistake:

We discussed that with Francoise. And she actually corrected us a little bit about that, because we assumed that a quiet, not-moving animal, is either calm, or secretly in pain. It doesn’t necessarily have to be like that. So the difference between seeing an animal calm but active, is still.... I don’t know if it’s because I don’t have a lot of experience with mice that I still find it difficult for me to assess that kind of thing.³⁶

Francoise confirmed that learning a qualitative “skilled vision”³⁷ which distinguished the *style* of behaviour from its broader gestures through the integration of subtle details seemed to be a source of difficulty for many scientists, often requiring some training:

Many people will interpret calm and relaxed as explicitly associated with when the animals are physically resting. Physically. It’s because they haven’t really processed the qualitative thing enough, they are stuck somewhere in a space between what they’re used to and what QBA asks them to do.³⁸

³⁴ Ibid.

³⁵ Howard, interview, February 9, 2018.

³⁶ Maria, interview, July 2, 2018.

³⁷ Grasseni, “Skilled Vision.”

³⁸ Wemelsfelder, interview, January 26, 2018.

I suggest, then, that the elusive “calm mouse” in the development of QBA testifies to the diversity of animal welfare professionals’ “somatic sensibilities,” and to a particular sensory, embodied skillset in qualitative assessment of animals different from the more objectivist practice of looking only for isolated “facts” of movement. This is not necessarily located in the duration of one’s familiarity with animals, but in an education of attention. Both Maria and Howard, experienced readers of animal bodies, found it difficult to grasp the shift in thinking from *what* the mouse was doing (scampering, running, sniffing) towards a kinaesthetic attunement to what “calm” could look or feel like in another species with a different rhythm of activity. This enacts particular consequences for the animals themselves – both a “calm” and an “agitated” mouse, by default, become less visible and knowable. It may of course be argued that a calm mouse was simply not available under the conditions of observation; however, the fact that it was so readily dismissed as non-existent in the species testifies to the same misunderstanding. Or it may be countered that Wemelsfelder’s quadrant system is flawed. Perhaps there *is* no such thing as a calm mouse. However, Maria’s admission of her misunderstanding still suggests an epistemological error, as does Francoise’s observation about the regularity of the problem. The case of the calm mouse was, in fact, just one example in the project whereby some experienced technicians and animal scientists said they struggled to shift their thinking away from ways of seeing animals as physiologically (ab)normal towards more emotional, contextual and dynamic assessments. This came to epitomise what Francoise, in our interviews, called the “objectification pressure” that faced the use of QBA, as different knowledge practices with different historical preoccupations encountered each other, rendering different visual, sensory or affective phenomena available.

In the remainder of this paper, I attempt to explain some of the difficulties the team had in “finding the qualitative” in QBA by taking a historical perspective. Tracing the development of Qualitative Behaviour Assessment alongside the emergence of animal welfare science as a discipline highlights the deeper ontological and epistemological challenge that QBA poses to conventional animal welfare science. It also helps explain how early preoccupations with what was judged *visible* and *invisible* in scientific observations of animal behaviour shaped a particular “ecology of practice” in animal welfare science, in which integrated, subtle and contextual observations of the “whole animal” were typically marginalised.

It's not common sense: animals, science and "boundary work"

The acceptance of Qualitative Behaviour Assessment into the laboratory environment in 2017 was far from a foregone conclusion twenty years ago, when QBA was often the subject of vigorous "boundary work" to exclude its practices from the scientific community. Boundary work occurs, argued Thomas Gieryn, because the borders of "science" as a discipline are genuinely ambivalent.³⁹ Science is often defined less by what it *is*, and more by what it *isn't*, by identifying practices of *pseudo-science* and shoring up its identity in response, especially when professional resources are in competition. The early formation of QBA's principles is a case in point, but it also demonstrates the precarious position that animal welfare science more generally held for much of its early development, and the need felt by its pioneers, in an emerging community of practice, to secure its boundaries against critique, or even ridicule, by policing the limits of scientific observation.

Raised in Holland, Wemelsfelder cites the beginning of her intellectual journey from when she was publicly lambasted, during a student presentation, for concluding that the castrated pigs she had been studying were *experiencing* pain, rather than merely "displaying pain behaviour." At the time, behaviourism, modelling itself on the revolutionary achievements of Newtonian physics, had not yet loosened its grip on the imagination of animal biologists. In 1913 John B. Watson urged comparative psychologists to "throw off the yoke of consciousness" in their studies and concern themselves only with observable behaviour, not with feelings.⁴⁰ Only by doing so, it was argued, could they distance themselves from ordinary public judgements about the meanings of behaviour – comparable to the naiveties of geocentrism – and thus conduct "real science." Rollins draws attention to the fierce "boundary work" that ensued over the following decades: scientific scepticism was to be defined against such "common sense."⁴¹ For example, in a 1939 address to the American Psychological Association, Gordon Allport reports:

It is said that the very claim made by some psychologists that their work remains true to life, close to untrammelled common sense is the very thing that disqualifies this work from being scientific.⁴²

The influential ethologist Nikolaas Tinbergen agreed that the subjective experience of animals

³⁹ Thomas Gieryn, "Boundary Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists," *American Sociological Review* 48, no. 6 (1983): 781-795.

⁴⁰ John B Watson, "Psychology as the behaviorist views it," *Psychological Review* 20, no. 2 (1913): 158-177.

⁴¹ Bernard Rollin, *The Unheeded Cry: Animal Consciousness, Animal Pain and Science* (Columbia: University of Missouri Press, 2017), 5.

⁴² Gordon Allport, "The Psychologist's Frame of Reference," *Psychological Bulletin* 37, no. 1 (1940): 1-28, cited in Rollin, *The Unheeded Cry*, 5.

was not discernible and should be excluded from scientific consideration. “Because subjective phenomena cannot be observed objectively in animals,” he wrote, “it is idle either to claim or to deny their existence.”⁴³ Even where there were growing theoretical discordances on this point, behaviourism’s *cultural* influence, positing the study of animal feelings as “unscientific” folly, successfully stigmatised research into animals’ subjective experiences for decades.

The identification of qualitative “feelings” as an appropriate topic of animal science, therefore, has a troubled history, and it would take significant labour from early animal welfare scientists of all methodological persuasions to overcome. Wemelsfelder often experienced such “boundary work” throughout her undergraduate career, where she was informed that the study of subjective experiences was a subject for art or philosophy, and had no place in animal science. To a significant extent, her intellectual journey has been constituted by this debate over the boundaries of science and what can be empirically perceived:

I thought that’s really bizarre, if that’s what science is I’m not sure I want to have anything to do with it. (...) So I thought either I’m leaving, or I’m going to face this problem head on, this thing about subjectivity and its place in science.⁴⁴

An interdisciplinary training

Wemelsfelder’s ability to identify and ultimately challenge the empirical scepticism of the science she was trained in came from a Dutch educational ecology of practice different from that which trained animal scientists like Howard and Maria in the UK. Buttressed by a university system willing to foster interdisciplinary investigation between science and philosophy, Wemelsfelder embarked on a period of doctoral research with the laboratory animal physiologist and philosopher Tijard de Cock Buning and the phenomenologist philosopher Henk Verhoog. The phenomenological training legitimated her efforts to conceive of animal subjectivity as visible in expression, and she became particularly interested in subtle, easily overlooked behavioural expressions of suffering such as lethargy, and how they might be made visible. Through a study of animal boredom, conceived of as frustrated *agency*, she was able to explore questions of consciousness as qualitative *feeling* rather than as abstract cognitive processing. Doing so, she became convinced that it was the disciplinary stance towards animal subjectivity that was flawed and needed to explicitly incorporate the presence of animal feeling in all its nuanced and dynamic details, rather than animal welfare scientists who needed to mould their methodologies to meet its existing objectivist precepts, as others in the field were beginning to do. She told me:

⁴³ Niko Tinbergen, *The study of instinct* (New York: Clarendon Press/Oxford University Press, 1951), cited in David Fraser, *Understanding Animal Welfare: The Science in its Cultural Context* (Oxford: Wiley-Blackwell, 2008), 82.

⁴⁴ Wemelsfelder, interview, November 7, 2017.

Scientists are: “it has to be objective, and this is what objectivity means.” And so if I’d been willing to look at consciousness and emotion as an object, I would have gone a completely different way, and people would have understood and been pleased with that, but right from the start, from my first year, I knew that was not the way for me. It’s very clear to me that I have never been on that path. I was always like, animals are primarily subjects. They are not merely objects. So you’re going there, and I’m going there, and I’m going to insist on calling it science. What the hell does that mean.⁴⁵

The growth of “objectivist” animal welfare science

The development of QBA as an applied methodological response to these theoretical convictions began when Wemelsfelder won a post-doctoral grant in 1993 with Scotland’s Rural College. She benefited from a time of increased political and academic interest in animals’ experiences. The 1980s saw a growth in applied ethology from animal biologists taking advantage of a new climate – a more vocal public animal rights discourse, and the first appearance of “animal welfare” as a political party commitment.⁴⁶ As Bock and Buller claim, the growth of animal welfare science began to reflect a shift from the uncontested expertise of animal production experts, to the formation of wider, “common sense” social judgements on the acceptability of certain conditions. A more open and publicly answerable animal welfare science emerged that was “a more interdisciplinary and ultimately more generous accounting” of animal subjectivity,⁴⁷ shifting natural science aside as the single authoritative voice on animal welfare and becoming increasingly in dialogue with more quotidian understandings of animal experience which were inherently more qualitative.

As a result, the definition of animal welfare science shifted from that of “biological fitness”⁴⁸ with the animal’s reproductive capacities considered the best measure of welfare, to an increased scientific interest in animal emotions, especially as physiologically productive animals continued to show psychologically distressed behaviours in response to intensive conditions. When Marian Stamp Dawkins published *Animal Suffering: The Science of Animal Welfare* in 1980 it was a watershed moment. Authoritative and confident, in the opening chapter she dismantled the excessive scientism of behaviourism and asserted the value of the

⁴⁵ Wemelsfelder, interview, November 7, 2017.

⁴⁶ Judith Hampson, “Updating the British Cruelty to Animals Act of 1876: Can the Center Hold?,” *International Journal for the Study of Animal Problems* 3, no. 2 (1982): 125-130.

⁴⁷ Bettina Bock and Henry Buller, “Healthy, Happy and Humane, Evidence in Farm Animal Welfare Policy,” *Sociologia Ruralis* 53, no. 3 (2013): 396.

⁴⁸ Donald M. Broom, “Animal welfare: Concepts and measurement,” *Journal of Animal Science* 69, no. 10 (1991): 4167–4175, on 4170.

reintroduction of “common sense” to questions of animal feeling.⁴⁹ Drawing particularly on emerging research from primatology, she argued that animal welfare could be studied in the conventional, objectivist scientific model, and that as a consequence it could reasonably justify scientific consideration of feelings. A new generation of animal welfare scientists including Dawkins, Donald Broom, Ian Duncan and David Fraser set out to pioneer new methods of controlled experiments into farm animals’ subjective experiences. However, in order to demonstrate the scientific acceptability of their work these scholars followed objectivist principles of atomism, reification and measurement, forging a highly specialist knowledge practice. The facts of behaviour needed to be clearly identified, defined and separated into distinct features for the purpose of measurement, and were often sampled at deliberately random, time-limited intervals rather than within a contextual flow of the observer’s choice. Moreover these facts should be rigorously separated from subjective *experience* for the animal, which was considered “private” and not perceptible in itself, but which could only be indirectly theorised through inference from measurable “correlates.” Many animal welfare papers of the time prefaced their accounts with this agnostic distinction. For example, Hurst et al. state:

Several major difficulties confront the scientific study of animal welfare, among them problems of definition and measurement, a dependence on indirect inference in surmising the subjective experiences of non-human species (...). It is, of course, entirely possible that taxon-specific analogues of suffering exist (...). These possibilities are taken into account if benefit of the doubt is given on the basis of infringed rules of thumb and we remain agnostic about direct measures of suffering.⁵⁰

Experiments relied on the conventional quantitative measurements of separated, mutually exclusive indicators, often relying on a species-specific “ethogram,” an expert-agreed outline of every possible behaviour that the species is capable of expressing. For example, Mendl et al. use an ethogram of pig behaviour to ascertain whether the social mixing of unfamiliar animals causes “correlates” of aggression.⁵¹ These categories were pre-recorded on a check-list for observation:

Knock: the pig uses a vigorous side to side movement of its head to hit any part of the head or body of another pig. The mouth is kept closed.

Bite: the pig vigorously opens and closes its mouth around any part of the head or

⁴⁹ Marian Stamp Dawkins, *Animal Suffering: The Science of Animal Welfare* (Dordrecht: Springer, 1980), 11.

⁵⁰ J. L. Hurst, C. J. Barnard, R. Hare, E. B. Wheeldon, and E. D. West, “Housing and welfare in laboratory rats: time-budgeting and pathophysiology in single-sex groups,” *Animal Behaviour* 52, no. 2 (1996): 335-360, on 335.

⁵¹ Michael Mendl, Adroaldo J. Zanella, and Donald M. Broom, “Physiological and reproductive correlates of behavioural strategies in female domestic pigs,” *Animal Behaviour* 44, no. 6 (1992): 1107-1121.

body of another pig while rapidly moving its head sideways or forwards towards the pig.

(...)

Fight: two pigs take part in an agonistic encounter involving knocking, biting, parallel and inverse parallel pressing and levering (see Jensen 1980) and lasting longer than 5 s.⁵²

Mechanistic language still prevailed as a way to avoid describing the observation of feelings. For example, Daniel Weary and David Fraser sought to ascertain piglets' level of need for their mother by temporarily separating them and measuring the duration, frequency and pitch of their calls. Whilst they suggest that the results may have implications for animal wellbeing, they avoid use of qualitative terms that suggest an emotional experience for the piglets and speak in the language of survival mechanisms:

[The results] indicates that the calls do not only advertise need for milk (...) Rather, they also seem to advertise a more general need to be reunited with the sow, perhaps because of the multiple costs of separation including missed feeding opportunities, poor thermal environment, and risk from predators.⁵³

If, as the phenomenologists variously argue, perceptual skills emerge in a community or ecology of practice that is fundamentally social and bound up with the emerging professional identity of the apprentice, we can think of the emergence of mainstream animal welfare science as an ecology of practice consisting of disciplinary hierarchies, power relationships, discourse, controlled experimental activity, visual aids like ethograms, and inscription devices which must be fed with particular forms of data. All of these things do not only convey a quantity of information, but sculpt the embodied *habitus* of the researcher as their professional identity is forged in relation to the community in which they wish to gain membership, training the scope and quality of attention and reproducing somatic sensibilities towards animals in particular ways. It becomes possible to see how the painstaking separation of the features of an animal's expression for the purpose of measurement can consume the attention and imagination, becoming a highly specialised visual skill in itself and leaving little room for a search for an integrated "style" of behaviour incorporating subtle shifting details such as levels of embodied tension, shifts of pace or direction of response.

⁵² Ibid., 1110.

⁵³ Daniel M. Weary and David Fraser, "Calling by Domestic Piglets: Reliable Signals of Need?," *Animal Behaviour* 50, no. 4 (1995): 1047-1055, on 1052.

A qualitative challenge

Wemelsfelder's methodological approach, however, differed from her peers from the outset. Puzzling over how to operationalise her commitment to the notion of animals-as-subjects into the disciplinary demands of scientific welfare assessment, she eventually decided that the dynamic, shifting emotions of her subjects would be more appropriately captured by *qualitative* descriptors, freely chosen by the assessors in the first instance:

...that would capture that immediate emotional expressivity instead of having the physical behaviour categories from which you can only infer the actual feeling. Which allowed me to measure the dynamic expressivity quantitatively. Or physically. But immediately lost the emotional component.⁵⁴

Her postdoctoral advisors, she says, were initially sceptical. However, as Wemelsfelder later outlines,⁵⁵ qualitative descriptors like “confident” or “excitable” had been used before in studies investigating the personality traits of individual animals,⁵⁶ often inspired by long-term primatology studies of apes in the wild in which individual characters vividly emerged. Joan Stevenson-Hinde's work with captive rhesus macaques was notable for defending the value of the interpretive role of the observer:

An active instrument, filtering, cumulating, weighting, and integrating, the observer had greater flexibility, more willing to see and incorporate new contexts or unusual behaviour than if provided with a set of pre-fixed behaviours to observe.⁵⁷

Communities of practices were emerging, therefore, that took a more integrative, dynamic, and contextual approach to observation. However, qualitative work remained marginal, limited to species already considered to be more charismatic, and theoretically under-developed. Wemelsfelder had to convince the mainstream scientific community that a qualitative methodology had value and that observer judgements could be reliable. Whilst later this would be done through sophisticated statistical techniques and physiological correlations with qualitative judgements,⁵⁸ initially this was done through making the philosophical case in animal

⁵⁴ Wemelsfelder, interview, November 7, 2017.

⁵⁵ Françoise Wemelsfelder, “How Animals Communicate Quality of Life: The Qualitative Assessment of Behaviour,” *Animal Welfare* 16, no. 5 (2007): 25-31, on 26.

⁵⁶ P. Buirski, R. Plutchik, and H. Kellerman, “Sex differences, dominance, and personality in chimpanzees,” *Animal Behaviour* 26 (1978): 123-129; Joan Stevenson-Hinde, R. Stillwell-Barnes, and M. Zunz, “Subjective Assessment of Rhesus Monkeys over Four Successive Years,” *Primates*, 21, no. 1 (1980): 66-82, on 66, cited in Wemelsfelder, “How Animals Communicate Quality of Life,” 19; J. Feaver, M. Mendl, and P. Bateson, “A method for rating the individual distinctiveness of domestic cats,” *Animal Behaviour* 34, no. 4 (1986): 1016-1025; Robert Fagen, Jan Conitz, and Elizabeth Kunibe, “Observing Behavioural Qualities,” *International Journal of Comparative Psychology* 10, no. 4 (1997): 167-179.

⁵⁷ Stevenson-Hinde et al., “Subjective Assessment of Rhesus Monkeys,” 19.

⁵⁸ One of the first examples being Françoise Wemelsfelder et al., “Assessing the ‘whole animal.’”

welfare journals. This argument is worth outlining here as it demonstrates the ontological and ethical significance for Wemelsfelder of making the perceptual distinction between a mouse that is “sitting still,” its emotional condition inferred at one step removed from behaviour, and a “calm” mouse, whose subjectivity is assumed to be open to view.

The philosophical case for QBA

Shortly after deciding on a qualitative approach, Wemelsfelder discovered Peter Hacker's essays on Ludwig Wittgenstein: “I found this book by him, called *Wittgenstein: Meaning and Mind* and I was just like, this is it, the penny dropped... the hair on my neck stood up.”⁵⁹ Wittgenstein argued that common conceptions of the mind-body relationship was the result of the distorting picture our language and its grammatical structure created in the world. He observed that we typically consider the “mind” an immaterial, private, interior space in which thoughts and experiences appear, directly knowable only through introspection. Any judgement about the thoughts and feelings of another in this framework can only be an indirect inference, we cannot “see” them ourselves. In this framework, the body's movements have no intrinsic meaning, they are the mere outcomes of a causal, “inner” self. Wittgenstein argued instead that this conception of “inner” experience and “outer” behaviour was false, and that behaviour should be viewed as a manifestation of emotion, attitude, intention and so on: “The human body is the best picture of the human soul.”⁶⁰

With the help of philosophers like Wittgenstein, Wemelsfelder argued that body language, conceived as *expression*, rendered an animal's meaningful experience of its situation *visible* as it interacted with its environment. Recognising and describing this experience in scientific work carried an important ethical function, she argued, because it allowed the bridging of social and scientific conceptions of animal welfare, ensuring that concepts like “suffering” could not be dismissed as mere anthropomorphic speculation.⁶¹ To describe one's cat as “wanting to go out,” she argued, is not anthropomorphic guesswork, but the observation of *a separate level of observable behavioural organisation*, that she understands as the cat's *agency*.⁶² Agency is conceived of as “a dynamic integrative centre of action,”⁶³ which cannot be fragmented into constituent parts. It must be, she says, considered *in itself* the empirical starting point and most appropriate theoretical perspective for observing the experience of a *subject*. Subjects respond in meaningful, qualitative ways to their surroundings. In other words, they are eligible for questions about *how* they respond:

⁵⁹ Wemelsfelder, interview, January 26, 2018.

⁶⁰ Ludwig Wittgenstein, *Philosophical Investigations* (Oxford: Basil Blackwell, 1958), 178.

⁶¹ Wemelsfelder “The Scientific Validity of Subjective Concepts,” 76.

⁶² *Ibid.*, 78.

⁶³ *Ibid.*, 76.

Thus, the behaving animal as a whole is not just an emergent by-product of walking legs, licking tongues and wagging tails; it is not merely the sum of the parts. The animal as a whole is the dynamic, integrative centre of action, the very point of origin for any behaviour or movement. This is crucial, in that it opens up another level of description and analysis. It implies that not only can we observe and describe behaviour as an object (i.e. “the walking”), but also as an expression, a property of a subject (i.e. “how the animal walks”).⁶⁴

The solution to the problem of interpreting and reporting on subjective experience is, she argued, to find what she calls “perspective-based” categories of description using qualitative terms that are capable of capturing not fixed “states,” but a more dynamic “style” of behaviour, accounting for fluid transitions and shifts in its modes: the meaningful modes of subjects.⁶⁵

What the above account demonstrates is how Wemelsfelder’s epistemology fundamentally differed from that of her peers in objectivist science and was embedded in its own “ecology of practice” with different standards of reference and apprenticeship. This comprised of interdisciplinary resources throughout her doctorate, such as access to the works of phenomenologists and later to the writings of Wittgenstein, which cross-fertilised her approach to the scientific method and allowed her to perceive features of animal behaviour with an intellectual legitimacy that was generally denied to others in the field. It also comprised of access to the work of long-term qualitative studies in animal personality. A qualitative identification of the “style” of the animal’s behaviour, using a skilled vision which identified and integrated diverse features of the “whole animal,” became crucial *for the very acknowledgement of its subjectivity*. This was a project which Wemelsfelder argued had ethical significance, spanning scientific and public understandings of animal welfare. In this sense her argument maps on to Haraway’s call for an “imaginative politics” in the laboratory which “rearticulates the relations of minds and bodies.”⁶⁶ The qualitative language of QBA is designed to render animals’ bodies inseparable from minds in an ontological *and observational* move, which integrates behaviours into a “whole animal” approach capable of opening up “another level of description and analysis” as described above. It thus re-frames human-animal interactions as between embodied, affected and affecting subjects.

Conclusion

Recent literature in STS has emphasised the ethical potential in everyday intuitive, affective, “response-able” practices of care in the animal laboratory. However, there has been limited attention to the embodied specificities of such “tacit knowledge.” In this paper I have used the

⁶⁴ Ibid.

⁶⁵ Wemelsfelder, “A Science of Friendly Pigs,” 225.

⁶⁶ Haraway, “When Species Meet,” 89.

Moor University team's difficult search for a "calm mouse" during a Qualitative Behaviour Assessment exercise to argue that such judgements on the emotional condition of mice cannot be considered an inevitable by-product of species-specific experience, nor of natural sympathies, but are in fact a practice of "skilled vision" that is socially and historically inscribed. I suggest that the difficulty faced by Howard, Maria and some of their colleagues in distinguishing the qualitative "style" of the mouse's behaviour (integrated details of movement, levels of tension, relative pace of motion and so forth) from its "facts" of movement (e.g. either moving or sitting still), was not simply the result of individual misunderstanding or the insufficient transfer of a body of information, but a phenomenological difficulty of perception resulting from membership of a different ecology of practice. As Lave and Wenger and Grasseni have argued, perceptual skills are learned through the process of gradually building a professional identity in this "community" or "ecology," which defines, through social activities, power relationships, the exchange of artefacts and the use of particular discursive vocabularies, which phenomena have relevance and how to identify and interpret them. The gaze or other senses like touch or hearing are thus disciplined, through social participation and imitation of others, to range across or rest upon a relevant feature, and the social judgements of more experienced others are internalised until they become part of an individual's somatic sensibilities. This helps define what counts as data, how it is recorded and what information can reasonably be shared with others. The process is historical, in that the community's preoccupations, conventions and objectives are embedded in temporal contingencies and its skills are transmitted over time.

These histories, that of "objectivist" animal welfare science on the one hand and Qualitative Behaviour Assessment on the other have been outlined here, with a view to imagining how they may have helped shape the perceptual capacities of their participants in different ways, although of course knowledge practices are always multiple and entwined. In the first case, pioneering animal welfare practitioners, frequently excluded from the scientific community by "boundary work," helped forge a discipline that was constituted by the struggle of its founding participants to find acceptance in this particular ecology of practice. During its establishment, the legacy of behaviourism helped induce a fundamental perceptual separation of observable behaviour and non-observable feelings. Although the *existence* of animal emotions became far more accepted, the policing of scientific language continued to enforce this separation to some degree, rendering qualitative descriptions, imbued with the animal's assumed feelings and intentions, illegitimate in public discourse. They could only be inferred in a secondary move from observable behaviour. Visual artefacts such as ethograms helped carry the authority of the scientific community into the gaze of the individual observer, and specify the behaviours to be observed as well-defined and *mutually exclusive*, rather than as inherently shifting and integrated. As a result, I suggest, most animal welfare scientists learn how to attune the gaze to find distinct fragments of motion with indisputable parameters

that can be identified, split off, held still, and measured in some way; rather than clouded by shifting, multiple subtle details. This becomes not just an abstract ideal but an education of attention, part of their embodied skillset and tacit knowledge, something which may or may not be disrupted by other ecologies of practices of which they are part.

Likewise, the history of Qualitative Behaviour Assessment suggests that it inhabits its own ecology of practice, populated by a more interdisciplinary, philosophically informed set of educational resources, activities, conversations, scholarly writings and events. During Wemelsfelder's doctorate and beyond, these resources legitimated a search for the animal's feelings as inherently public and observable, rather than as hidden and requiring an illative manoeuvre to presume. The accepted visibility of animals' emotions opened up the possibility of using qualitative descriptors of their behaviour, loaded with the *meaning* that the animal was believed to attach to its situation, even when that behaviour was relatively subtle (for example, "bored"). The recording of qualitative information was also compelled by an ethical desire to render the animal's subjectivity epistemologically present in its liveliness and irreducibility during welfare assessment, emphasising the dynamic and shifting expressivity of the animal rather than objectifying it for the purpose of measurement. The support of like-minded colleagues in Scotland, fellow qualitative practitioners in studies of animal personality and the wider public interest in new kinds of animal welfare assessment helped foster a skilled vision that was differentially attuned. It was more capable of integrating subtle details of movement, and perceiving, for example, the nuances of embodied tension, gradations of speed relative to the species, and the extent of weight or force behind the action. All these things help make up the "style" of the animal's behaviour and are perceived through an education of attention that attaches visual significance to small details, integrates rather than separates, and values the importance of situated judgement over a shifting and uncertain visual terrain rather than deferring to the authority of a pre-defined ethogram.

Returning then, to Haraway's call for increased "response-ability" in the laboratory which is the cultivation of affective, reciprocal, and spontaneous communications between animals and humans; and to the "somatic sensibilities" which Greenhough and Roe attribute to laboratory animal welfare professionals as an exemplar of empathetic non-verbal communication. This study suggests that such perceptual, intuitive sensibilities are not uniform in character, but are multiple and various, dependent on the immersion of each individuals in different ecologies of practice which may consist of more or less affective, relational or objectifying epistemologies. It also suggests that the qualities of Haraway's "response-ability" might require more significant social support and cultivation, not just in those outside of animal welfare roles, but even *within*

those communities often assumed to already perform them.⁶⁷

Whilst “objectivist” practices too have value, the advantage of Qualitative Behaviour Assessment to those concerned with “cultures of care” in laboratory settings might be in the way it legitimates the perception of phenomena that has typically been marginalised or outright denied in the laboratory. It could make animal subjectivities more available, affecting humans too in a more relational and affective process of welfare assessment. However, unless sufficient training in its embodied methodological activities takes place in the laboratory, this methodology is likely to be subject to what Francoise called “objectification pressure” from knowledge practices that are just as tacit and intuitive, but forged through different and often more socially authoritative “ecologies of practice.” Finding “the qualitative” in Qualitative Behaviour Assessment then becomes more of a challenge.

Nonetheless, this study shows that “response-ability” is multiple and specific in its different embodied enactments of social histories, and deserves further attention, because ecologies of practice also enact particular futures. Whether or not “calm” mice are concluded to exist has consequences for the shape of further welfare assessments, and ultimately for the mice themselves.

Acknowledgements

My gratitude is extended to Francoise Wemelsfelder for her time and generosity throughout this research project, as well as to “Howard,” “Maria” and the team at “Moor University” for their patient explanations in interviews and their kind accommodation of my fieldwork at the laboratory. My appreciation also to the editorial team at *HoST* and to two anonymous reviewers for their helpful feedback on this article.

Competing interests

The author has declared that no competing interests exist.

Funding

This research was funded by a PhD studentship at the School of Social Sciences, University of Manchester.

⁶⁷ Scientific studies of QBA have also noted the importance of training in qualitative terminology for reliable outcomes in QBA. See Taya Clarke, John R. Pluske, and Patricia A. Fleming, “Are observer ratings influenced by prescription? A comparison of Free Choice Profiling and Fixed List methods of Qualitative Behavioural Assessment,” *Applied Animal Behaviour Science* 177 (2016): 77-83.