Epistemic inequities

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WTMC SERIES

ON TEACHING & LEARNING STS

Epistemic Inequities

Summer School

2024

WTMC | ol of Science, Technology and Modern Culture

WTMC Series on Teaching and Learning STS

Publication of the Netherlands Graduate Research School
of Science, Technology and Modern Culture (WTMC)

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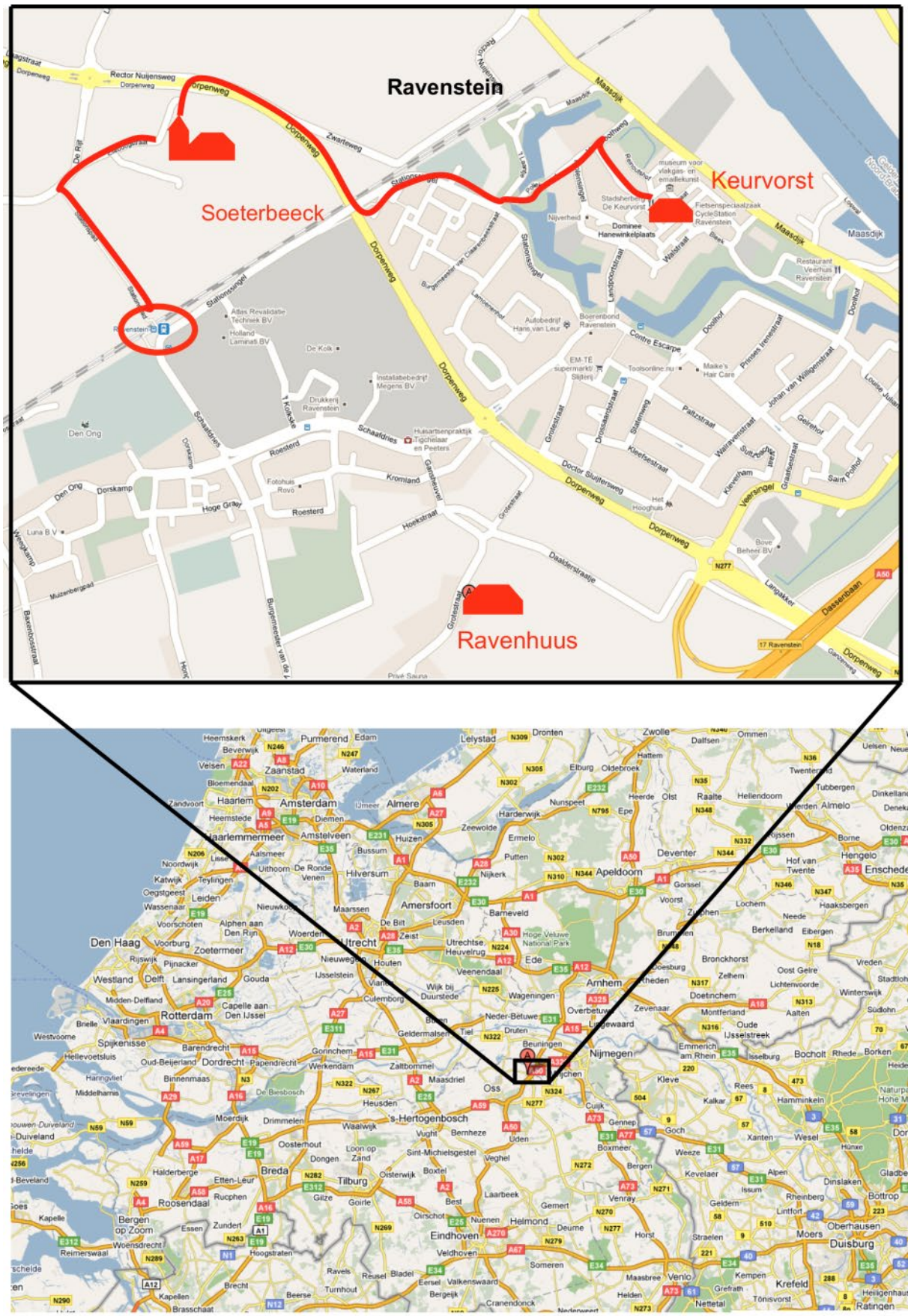
Contents

Maps



Thank you, Google maps

Directions

Address

Studiecentrum Soeterbeeck / Study and Conference Centre Soeterbeeck
Elleboogstraat 2
5352 LP Deursen-Dennenburg
Phone: +31-24-36 15 999

https://www.ru.nl/soeterbeeck/

By train

Take the local train ('stoptrein', NOT the Intercity or fast train) in Nijmegen or 's Hertogenbosch to Ravenstein, leaving every half hour. This takes 15 or 20 minutes, respectively. At the railway station in Ravenstein take the exit at the back of the station, and follow the small footpath ('Stationspad'); at the end of the path turn right and enter the Soeterbeeck premises through the entrance gate. This is a 10-minute walk. Dutch railway schedules can be found at www.ns.nl.

By road

Motorway A50 Arnhem - 's Hertogenbosch (= coming from Arnhem): take the exit Ravenstein (nr.17); at the roundabout turn left, next roundabout straight on, next roundabout turn left (de Rijt), and again left after 100 m (Elleboogstraat), enter the Soeterbeeck premises through the entrance gate.

Motorway A 50 's-Hertogenbosch - Arnhem (= coming from 's-Hertogenbosch). Take exit Ravenstein (nr.17); at T -junction, turn left, and again left at the traffic lights; first roundabout straight on, and again straight at second roundabout; next roundabout turn left at the crossing (De Rijt), and again left after 100 m (Elleboogstraat); enter the Soeterbeeck premises through the entrance gate.

Introduction to the Summer School

Welcome to the 2024 edition of the WTMC Summer School. Together with our anchor teacher Sharon Traweek, we will explore the theme of 'Epistemic Inequities'. We look forward to spending an interesting, inspiring, fun week together in Soeterbeeck in July – but the adventure starts not in July in Soeterbeeck, but right here, right now. This programme, together with some readings and assignments that you will have to prepare yourself, provides the luggage for your journey. Travel well prepared!

It is advisable that you first carefully study the whole programme, before embarking on the actual reading. This should help you get a sense of the themes and how they connect, and how specific texts fit in those themes. The compulsory reading material amounts to (the equivalent of) roughly 500 pages, which at 8 pages per hour would take you about 62 hours to prepare, with some sessions requiring you to make your own choices about what to read. Also, some assignments require preparation, others require you to think about what you want to learn. And finally, we will have a number of participant presentations. Be sure to check whether you are assigned the role of discussant for one of them.

For each of you, the ideas and concepts discussed during the Summer School will have different kinds of relevance. This depends on your research topic and method, the phase you are currently in, and your personal interest. The Summer School is not a "one size fits nobody" event, and getting the most out of it does require some work, both before and during the event. Make sure that you have in mind what you would like to learn, and how that can be achieved. In general, it is good practice to prepare one or more written questions about the reading material for each session. This helps focus your attention during lectures, and it ensures that you have something to contribute to the discussion, especially, if you are not that eager by nature to join discussions. Of course, going with the flow and welcoming things the way they happen to come to you is also an important mode of learning. The 'what kept you awake' sessions that we have put on the agenda each morning (from day 2 onwards) serve as a collective check-in moment to reflect on how things are going, and to see how we should steer to keep on track.

Then a special note on the readings: While all guest lecturers have assigned articles they want you to read beforehand, our anchor teacher has provided us with a bibliography and special instructions for her five lectures. Here is what you need to do to prepare these lectures:

1. Please come to the summer school with **some working definitions and examples** for these key concepts: "enabling assumptions", "essentialisms", and "exceptionalisms".
2. Please **select and read 30-45 pages on** the themes mentioned in the abstracts for each of the five lectures. You are free to choose your own readings on those themes. Keep track of and come prepared to let us know how you made your selections and what you find salient in the items you read. If you like, you could read some items cited in "Making Difference at the Edge," for *Decentralizing Knowledges: Essays on Distributed Agencies*, edited by Sandra Harding and Leandro Rodriguez Medina (forthcoming from Duke University Press, 2024). This text is added to the reader. For all other references to Sharon Traweek's

own work relevant to these lectures see below. Many texts are posted at Academia.edu and at Researchgate.net (=RG). See also Corridortalk.blog. During the sessions, we will spend some time on discussing which texts you chose.

Epistemic Politics: Knowledge making with meshworks at the faultlines of global political economies

- Traweek, S. (2000), "How Modern Became Retro: an historical political economy of knowledge," in *Cultural Studies of Science, Technology, and Medicine*, edited by S. Traweek and R. Reid. Routledge, RG access.
- Murillo, L.F.R., D. Gu, R. Guillen, J. Holbrook, and S. Traweek (2012), "Partial perspectives in astronomy: Gender, ethnicity, nationality and meshworks in building images of the universe and social worlds," *Interdisciplinary Science Reviews* 37:1, 36-50, https://doi.org/10.1179/0308018812Z.0000000003
- Traweek, S. (2021), "Let Canons Burn?" *Anthropology Now,* 12:3, 34-38, https://doi.org/10.1080/19428200.2020.1884484
- Traweek, S. (2021), "I Prefer the Map," *Engaging Science, Technology, and Society*, 7:2, 56-64, https://doi.org/10.17351/ests2021.823

  See also comments by…
  - Subramaniam: https://doi.org/10.17351/ests2021.817
  - Harding: https://doi.org/10.17351/ests2021.821
  - Mikami: https://doi.org/10.17351/ests2021.827
  - Núñez and Suarez: https://doi.org/10.17351/ests2021.815
  - and Sørensen: https://doi.org/10.17351/ests2021.857

Epistemic edges: theories as methods and methods as theories

- Traweek, S. (2024, forthcoming), "Making Difference at the Edge," for *Decentralizing Knowledges: Essays on Distributed Agencies*, edited by Sandra Harding and Leandro Rodriguez Medina. Duke University Press. **(included in reader)**
- Traweek, S. (1999), "Warning Signs: Acting on Images," in *Revisioning Women, Health, and Healing: Feminist, Cultural, and Technoscience Perspectives*, edited by A. Clarke and V. Olesen. Routledge, RG access.
- Traweek, S. (1998), "Iconic Devices: Toward An Ethnography of Physics Images," in *Cyborgs and Citadels*, edited by Gary Downey and Joseph Dumit. University of Washington, RG access.
- Traweek, S. (1997), "Unity, Dyads, Triads, Quads, and Complexity: Cultural Choreographies of Science," *The Science Wars*, edited by Stanley Aronowitz and Andres Ross. Duke University Press, RG access.
- Traweek, S. (1995), "Bodies of Evidence: Law and Order, Sexy Machines, and the Erotics of Fieldwork among Physicists," *Choreographing History*, edited by Susan Foster. Indiana University Press, RG access.
- Traweek, S. (1987), "Discovering Machines: Nature in the Age of its Mechanical Reproduction," in *Making Time: Anthropologies of Time in Science and High Technology Organizations*, edited by Frank Dubinskas. Temple University Press, RG access.

Promissory Epistemics: if you give us funding, we'll teach, explain the universe, and fix global economies

- Traweek, S. (2006), "Generating High Energy Physics in Japan: Moral imperatives of a Future Pluperfect," in *Training Scientists, Crafting Science: Putting Pedagogy on the Map for Science Studies*, edited by David Kaiser. MIT Press, RG access.
- Sørensen, K. H. and Traweek S. (2022), *Questing Excellence in Academia: A Tale of Two Universities*. Routledge, chapters 2 and 5 on innovation discourse in academia, promising quality, counting productivity, open access.

Epistemic Ethics: structural intersubjectivities, teaching, and research in knowledge making communities

- Sørensen, K. H. and Traweek S. (2022), *Questing Excellence in Academia: A Tale of Two Universities*. Routledge, chapters 3 and 4 on autonomy, subjectivity, and discipline: wanting to be what we should become, open access.
- Traweek, S. (1988), *Beamtimes and Lifetimes: The World of High Energy Physicists*. Harvard University Press. See Chapter 3: Pilgrim's Progress: Male Tales During Life in Physics. **(included in reader)**

Epistemic Places, Spaces and Borders: building knowledge in the margins

- Traweek, S. (1996), "When Eliza Doolittle studies 'enry 'iggins," in *Technoscience, Power, and Cyberculture: Implications and Strategies*, edited by S. Aronowitz, B. Marinsons, M. Menser, and J. Rich. Routledge, RG access.
- Traweek, S. (1996) "*Kokusaika, Gaiatsu, and Bachigai:* Japanese Physicists' Strategies for Moving into the International Political Economy of Science," in *Naked Science: Anthropological Inquiry into Boundaries, Power, and Knowledge*, edited by Laura Nader Routledge, RG access.
- Traweek, S. (1999), "Border Crossings: Narrative Strategies in Science Studies and Among High Energy Physicists at Tsukuba Science City, Japan," in *Science as Practice and Culture*, edited by Andy Pickering. University of Chicago Press, RG access.
- Traweek, S. (1992), "Big Science as Colonialist Discourse: Regional Differences in Japanese High Energy Physics," in *Big Science*, edited by Peter Galison. Stanford University Press, RG access.
- Traweek, S. (2004), "*Keizu to Nendaiki*: Making History in Tsukuba Science City," in *Social Study of Science: An Interdisciplinary Context*, edited by Jesus Valero de Matas. Auckland University and Universidad de Valladolid, 31 pages, RG access.
- Traweek, S. (1995), "*Bachigai* [out of place] in Ibaraki: Tsukuba Science City, Japan," in *Technoscientific Imaginaries* edited by George Marcus. University of Chicago Press, pp. 355-378, RG access.

* * *

By way of introduction to 'new epistemic strategies for STS', this summer school examines foundational epistemic challenges, which had first surfaced through a feminist provocation during the 1960s and 70s, but which often remain ignored today, sometimes even by feminists. First, the cultural binaries of wo/men were demonstrated as variable across time and space, not natural and biologically determined. Next, the sexual binaries of fe/male were demonstrated as a radically flawed simplification of a much wider array of possibilities. Then the biological science and medicine of sex and gender was shown to be saturated with dyadic assumptions embedded in locally specific cultural practices. Gradually, the binary logics of science and gender were seen as having histories and they became a subject of inquiry, interrogating what had previously been presented as natural distinctions.

In this summer school, we will critically consider such epistemic inequities. Drawing on insights from feminist epistemologies, we call into question a number of assumptions about hierarchies, binaries, objectivities and subjectivities that shape the production and circulation of knowledge. In doing so, we pay attention to four closely interrelated themes. In 'epistemic edges', we discuss how research questions, designs, and methods that at first are considered marginal, atypical, and perhaps transformative emerge and are maintained in the margins of different ecologies. In 'promissory epistemics', we study how knowledge making practitioners/communities/cohorts/clusters seek resources and recruits to pursue projects that might take decades to achieve their goals, while acknowledging that there is risk that the goals will not be achieved. In 'epistemic ethics', we zoom in on knowledge making practitioners who are challenging intersectional inequities in their own communities, and consider how departments, universities, research institutes, and scholarly institutes diligently and energetically chose to not challenge abuse, bullying, and violence, what Japanese call 'pawa hara' – power harassment. In 'epistemic borders', we want to explore how knowledge and knowledge makers travel: how do the infrastructures they use challenge, revise, undermine, and revise the epistemic practices that many think are universal, or at least ought to be.

This summer school invites participants to reflect upon how we humans engage in robust knowledge making about other humans making robust knowledge. Together we will discuss how the use of binaries, hierarchically ordered, gendered and privileged social classification systems as tools for making and circulating knowledge, reinforces those practices in the ways we make and circulate knowing. If we accept the 50 year-old challenge of feminist epistemology, we must practice a more fluid spectrum of epistemic possibilities, as, of course, found empirically around the world in many phenomena. We also accept the challenge that we are humans studying human phenomena, always entangled in the processes we study. To act as if that were not true, and call that denial 'objectivity' is bizarre, yet fiercely defended by many of our colleagues who want to 'observe' or 'listen' from a distance, but not be close enough to smell, touch or taste. Feminist epistemologists are not the first to have acknowledged that when we interact with the world, it changes, as do we. Of course, thoughtful people have been making robust knowledge without dyads for millennia. Inspired by all that work, this summer school challenges you to consider what we can learn and teach when we use different epistemic practices.

* * *

On Monday, we will be setting the scene with an opening lecture by our anchor teacher Sharon Traweek and a lecture by Esha Sha from Wageningen University. In the afternoon, we'll have ample opportunity to exchange thoughts about Karen Barad's book *Meeting the Universe Halfways*. Don't forget to prepare for this session by going through the detailed instructions under 1.3.

On Tuesday, we will shift the focus to 'epistemic edges'. More specifically we examine how research questions, designs and methods that at first are considered, atypical, and perhaps transformative emerge and are maintained in the margins of different ecologies. Next to Sharon Traweek's lecture, Annemarie Horn from Utrecht University will examine how research spaces in which inter- and transdisciplinary work at such 'epistemic edges' is done are and can be organized. We'll conclude the day with a skills session on 'historical document analysis'. In the evening, there will be opportunity to reflect upon the day while playing games.

On Wednesday, we will address the topic of 'promissory epistemics'. Together with our anchor teacher and our guest speaker Kyriaki Papageorgiou from the Norwegian University for Science and Technology, we'll study how knowledge making practitioners/communities/cohorts/clusters seek resources and recruit to pursue projects that might take decades to achieve their goals, while acknowledging that there is a risk that the goals will not be achieved. We're in particular looking forward to Kyriaki's talk which will tackle the topics of academia, AI and climate change. In the afternoon, the WTMC PhD representative organize a session on the role of WTMC with respect to facilitating healthy engagement with academia. The rest of the afternoon is free, so feel free to explore the landscape around Soeterbeeck or even to enjoy a swim in the nearby Maas!

On Thursday, we will zoom in on the topic of 'epistemic ethics' or the study of how knowledge making practitioners/communities/cohorts/clusters treat each other and their work. While Maarten Derksen from Groningen University will discuss knowledge making practices of psychologists, Sharon Traweek's lecture will discuss concrete examples of refusals of care: when knowledge making communities do not protect their marginalization or even watch as they are violated. We'll round off the day with a session by Catelijne Coopmans, a former STS scholar now working as a coach, on 'Presenting and connecting at academic conferences', and a movie night.

On the final day of the summer school, we examine how knowledge and knowledge makers travel, and how the infrastructures they use challenge, revise and undermine the epistemic practices that many think are universal, or at least ought to be. This will also involve reflections on Sharon Traweek's fieldwork in Japan. Wiebe Bijker, our guest speaker of the day, will also include examples from his experience of doing research and making research policy in India.

We also look forward to some great presentations about PhD projects by some of you (spread over two sessions across the week), and stimulating discussions with all of you!

Alexandra and Andreas, also on behalf of the speakers.

Practical notes

To do before the Summer School

Allow about two weeks for preparation of this summer school. The compulsory literature consists of roughly 500 pages. At 8 pages per hour, this takes about 62 hours. We expect you to spend about 18 more hours to prepare the exercises, and read part of the recommended literature as you wish. This amounts to 80 hours in all, which is the standard amount of preparation time for a summer school. In preparation, proceed as follows:

- Read the detailed programme and pay special attention to the activities so that you know in advance what you need to prepare and think about.
- Read all literature before you arrive – there is no time to do so once we're at Soeterbeeck. Make notes about what you don't understand, questions you would like to ask, things you want to discuss.
- Check the programme to see if you are a discussant for one of the PhD presentations. Look at the sections "PhD presentation guidelines' and "Feedback on presentations", which contains guidelines for presenters, discussants and all others!

What to bring with you

- Your material for this summer school.
- Debit card or credit card. In the evenings, there are informal drinks, which you have to pay on the last day upon check out. Cash is not accepted.
- **Earplugs:** we reside in an old convent, so corridors and doors may be noisy at night.
- Bring proper **footwear** and **rainproof clothes** (you never know) for outdoor activities. Depending on the season, it can get very hot or cold (indoors and out), and there may be mosquitos, so come prepared!
- Last summer we had quite some mosquitos around, so better bring some **anti mosquito spray** with you.
- To get moving during breaks: bring footballs, badminton gear, frisbees etc. Soeterbeeck provides a ping-pong-table, bats & balls, and (usually) some bicycles. Running addicts: bring your running gear! Card games or board games for the evenings are also welcome.

Attendance and cancellation

- *The summer school is residential*: you are expected to check in at Soeterbeeck on Monday morning, and check out on Friday. On some days, the programme extends into the evening.
- In order to receive credit for attending the summer school, *you are required to be present throughout the entire event*. Exceptions are possible only in case of calamities. If this creates problems, then please contact the coordinators beforehand and as soon as possible.
- If, for any reason, you are unable to attend the workshop, please let the WTMC Office (wtmc@utwente.nl) know **as soon as you can**. We may be able to offer your place to someone on the waiting list if we know soon enough. If notice of cancellation is received more than 10 days prior to the start of the workshop, you will receive a refund for all of the fees, minus €100 to cover the costs of administration and course materials. In the case of cancellations received less than 10 days before the start, fees and any other costs that have been incurred by WTMC will not be refunded.

Morning	Monday 8 July	Tuesday 9 July	Wednesday 10 July	Thursday 11 July	Friday 12 July
	Epistemic Inequities	**Epistemic Edges**	**Promissory Epistemics**	**Epistemic Ethics**	**Epistemic Borders**
9.00-9.15		What kept you awake?	What kept you awake?	What kept you awake?	What kept you awake?
9.15-10:45	*Arrival and check-in*	2.1 PhD presentations 1	3.1 Lecture, Sharon Traweek, Promissory Epistemics	4.1 Lecture, Sharon Traweek, Epistemic Ethics	5.1 Lecture, Sharon Traweek, Epistemic Spaces, Places and Borders
10.45-11:15	1.0 Opening	break	break	break	break
11.15-12.45	1.1 Lecture, Sharon Traweek, New Epistemic Strategies for STS	2.2 Lecture, Sharon Traweek, Epistemic Edges	3.2 Lecture, Kyriaki Papageorgiou, Hopes, promises and alternative futures: Rethinking academia in the age of climate change and AI	4.2 PhD presentations 2	5.2 Lecture, Wiebe Bijker, Crossing epistemic borders in India and in policy making
12.45-14:00	lunch	lunch	lunch	lunch	lunch

Afternoon	Monday 8 July	Tuesday 9 July	Wednesday 10 July	Thursday 11 July	Friday 12 July
	Epistemic Inequities	**Epistemic Edges**	**Promissory Epistemics**	**Epistemic Ethics**	**Epistemic Borders**
12.45-14:00	lunch	lunch	lunch	lunch	lunch
14:00-15.30	1.2 Lecture, Esha Shah, How Science Is Emotional?	2.3 Lecture, Annemarie Horn, Disciplinary, interdisciplinary, adisciplinary, undisciplinary – Living in the in-be(tween or building a new home?	3.3 WTMC rep session (optional), What can WTMC do to facilitate a healthy engagement with academic life and beyond for its PhD students?	4.3 Lecture, Maarten Derksen, Knowledge, self, and social order in an open science.	5.3 Closing Discussion and Farewells
15.30-16.00	break	break	Free afternoon	break	Departure
16.00-17.30	1.3 Core reading: Karen Barad, Meeting the Universe Halfway	2.4 Skills, Historical Document Analysis		4.4 Skills: Catelijne Coopmans, Presenting and connecting at academic conferences: an embodied lens	
17.30-19.00	dinner	dinner	optional buffet dinner	dinner	
19:00- 20:45	1.4 Reflective walk	2.5 Games evening	free evening	4.5 Movie night	

Detailed overview

Monday, 8 July: Epistemic Inequities

1.0 Opening

We'll kick off the summer school with an introductory session.

1.1 Lecture: New Epistemic Strategies for STS, Sharon Traweek

In order to further develop and clarify my concerns, while engaging in intensive discussion about them with you, in these lectures I will address four densely tangled themes which I call *epistemic edges, promissory epistemics, epistemic ethics*, and *epistemic spaces*. In this first lecture, I introduce why I think they are important for understanding the practice and implications of our epistemic politics. I will discuss why I explore that tangle through ethnographic, participant-observation fieldwork, oral history interviews, and archival searches, plus why I make use of certain theoretical approaches. I also will describe my selection of field sites, including universities and large-scale physics and astronomy research facilities, located in Japan, Sweden, Switzerland, and the US, all situated in a rapidly changing, quite global ecology of intersecting crises and accumulating disasters: precarities, inequities, toxicities, pandemics, and pollutants. I attend to how we reflexively engage in robust knowledge making about other humans making robust knowledge. That is, we are mutually entangled in the same epistemic dilemmas of passionately pursuing some robust knowledge on topics that compelling, disturbing, and urgent to us, all in the midst of turbulent times.

By way of introduction to 'new epistemic strategies for STS' I want to examine how a feminist provocation during the 60s and 70s led to foundational epistemic challenges. First, I rehearse litany of dyads that saturate our lives: the social binaries of wo/men, the sexual binaries of fe/male, the cultural binaries of humans/natures, minds/bodies, thoughts/emotions, normative/abnormal, the political binaries of West/East, North/South, upper/lower classes, the certified and the undocumented, along with all the binary logics of science. I chronicle tersely how all came to be seen, not as universals, necessary, and natural, but as canons having histories, then becoming subjects of inquiry. I explore the odd hierarchical epistemic structure embedded in those imbalanced binaries. I discuss how we learn to value one and repress the other, such as drawing the line between sub/objectivity. I ask why that entire set of feminist foundational epistemic projects often remain ignored today, sometimes even by feminists, and I ask what studied ignorance, what agnotological practices are enabled by that erasure. I argue that process is a kind epistemic violence, including self-censorship; and self-mutilation that authorizes epistemic harm.

Preparation and required reading:
Please make your own selection of relevant readings (by Sharon Traweek or others – see note on readings in the Introduction of the summer school programme for some starting points). And make sure that you come to the summer school with some working definitions and examples for these key concepts: "enabling assumptions", "essentialisms", and "exceptionalisms".

1.2 Lecture: How Science Is Emotional?, Esha Shah

Since the Enlightenment, our entire scientific knowledge traditions are fundamentally shaped by the perspective that only our innate capacity to reason gives us knowledge of things as they really are and passions and emotions introduce nothing but elements of distortion. Accordingly, subjectivity and objectivity occupy opposite sides. In other words, objectivity in the knowledge-making is a denial, willful control, or erasure of subjectivity. Historian of science Steven Shapin calls this "Dustbin concept of subjectivity" – the bin of biographies collects those personal stories that are believed to deflate, disrupt, or disorder scientific objectivity. And that is why in all branches of science, we have created institutions and practices and beliefs and values in which the real person, the feeling and experiencing, embodied scientist-self doing science is erased or kept hidden behind the scenes and sites of knowledge-making.

In this session we will take emotions seriously. We will discuss how emotions and reasons are inseparable in the making of knowledge; how on the site of the embodied "affective" experiences that the knowledge of the world is formed; and, how seeking knowledge is as much about understanding and building a world, it is fundamentally about seeking a self.

Drawing from the biographical accounts of prominent genetic scientists discussed in her book *Who is the Scientist-Subject? Affective History of the Gene* (Routledge, 2018), in her interactive lecture Esha Shah will challenge the dominant idea that scientific knowledge is entirely a product of dispassionate, empirical and rational inquiry.

Preparatory Exercise:
Prior to the session, read the science fiction story called *Inside Job* by American writer Connie Willis. After reading the story, please first write one paragraph answering the following questions: who are the main actors in this story that are seeking knowledge? What is the knowledge they are seeking? What do they consider as truth and reason and rationality, what do they consider as scientific and what is not scientific? How do they embark on their journey establishing the scientific rationality and what happens to the truth and reason on the way to their destination? What according to you are contradictions, ambivalences and ambiguities in this story? What role do you see played by love, desire, ambitions, aspirations, passions, values, beliefs, intuitions, emotions in the making of what is understood as scientific and rational knowledge in the story? And then write another paragraph about your own PhD research answering exactly the same questions. At the beginning of the session, every student will be invited to take 2-3 minutes to summarize their paragraphs and highlight their answers.

Required reading:

- Willis, C. (2005), *Inside Job* (Burton: Subterranean Press).

Optional further reading:

- Schaefer, D. (2022), *Wild Experiment: Feeling Science and Secularism after Darwin*. Duke University Press. Intro and one chapter.

1.3 Core reading

In our core reading session, we shift our attention to one of the 'classic' texts of STS found on the WTMC core reading list, and discuss it in-depth on its own terms, as well as in connection to the overall themes of the summer school. This time, we have decided to focus on key chapters from *Meeting the Universe Halfway* by Karen Barad (2007): specifically, the introduction chapter as well as chapter 4, which is the key theoretical chapter in which Barad develops the concept of 'Agential Realism'. We will not give away very much about the book in preparation, because we are curious what *you* make of the book and where you see its main contributions.

In preparation of this summer school, we want to you to write a short written reflection (about 750 words) on *Meeting the Universe Halfway*, based on your reading of these two chapters. Make sure to address what you see as the book's main argument and contribution, which you can also evaluate against the backdrop of other readings for this summer school. Think of it a bit like a book review, though we will not formally ask you to present it in the format of a publishable review – it is primarily a way to collect your thoughts and share them with others, so that you can let them sink in beforehand and deepen your collective engagement with the book in this way.

During the summer school itself, we will discuss the text in groups of four (see overview below), using your written reflection as a starting point. Please make sure to send your text to your three team-mates (with Alexandra, a.supper@maastrichtuniversity.nl, in CC) **no later than one week before the start of the summer school**, and to also read your teammates' contributions before you arrive in Soeterbeeck. Make some notes about the differences and commonalities that you notice in your respective readings of Barad.

Group	First name	Surname
1	Daniella	Pauly Jensen
1	Esther	Blokbergen
1	Wytske	Hepkema
1	Wisse	Van Engelen
1	Nina	de Bakker
2	Candida	Sánchez Burmester
2	Ayush	Shukla
2	Aisa	So
2	Esther	Baar
3	Gianna	Marsman
3	Marije	Miedema
3	Nando	Katoele
4	Joe	Litobarski
4	Jessica	Coetzer
4	Efe	Cengiz
4	Jill	van der Kamp
5	Eliana	Bergamin
5	Lotje	Siffels
5	Jenske	Bal
6	Ilse	Dijkstra
6	Lenn	Gorissen

6	Charlotte (Lot)	Tiebosch
6	Hanna	van Bentum
7	Monica Ioana	Vasile
7	Ana	Parrón Cabañero
7	Sevgi	Fruytier
7	Tamalone	van den Eijnden
8	Stefan	Gaillard
8	Sarah Rose	Bieszczad
8	Shachi	Mokashi
8	Hanneke	de Boer

Required readings:

- Barad, K. (2007), *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Duke University Press. Introduction and chapter 4: pp. 3-38 and pp. 132-185.

1.4 Reflective Walk

We meet at 19:00 and divide into groups of three (making sure to have a good mix within each group of institutional affiliations, levels of experience and navigational skills), who go off on a walk together. During this walk, we invite you to reflect on epistemic inequities that you encounter in your own working environment. Make sure to think beforehand if there are any specific issues or observations you would like to discuss while you walk – the resources below are by no means obligatory readings, but might be interesting to consult before or after the summer school.

Optional resources:

- Ellers, N. et al. (2022), Report for KNAW on Social Safety in Dutch Academia, available at www.knaw.nl/socialeveiligheid
- The PNN (Promovendi Support Network) offers a variety of resources, including a Support Compass in case you are encountering issues in your PhD that you need help with: https://hetpnn.nl/en/kennisbank/phd-support-compass/

Tuesday, July 9: Epistemic Edges

2.1 PhD presentations 1

Please see PhD Presentation Guidelines in this programme.

Presenter: Shachi Mokashi	Respondent: Daniella Pauly Jensen
Presenter: Tamalone van den Eijnden	Respondent: Aisha So
Presenter: Ayush Shukla	Respondent: Jenske Bal

2.2 Lecture: Epistemic Edges, Sharon Traweek

I revisit the topic of the imbalanced dyads, focusing on the unprivileged, the subordinated, the marginalized epistemic practices**.** I discuss how research questions, designs, and methods that at first are considered marginal, atypical, and perhaps transformative emerge and are maintained in the margins of different ecologies. Many fields of inquiry begin that way and the practitioners intend for them to be quickly 'disciplined' and incorporated into powerful infrastructures, established lines of inquiry in which there are well defined queries, methods, debates, and resources for participation. I explore how and why those projects that are not easily or readily assimilated manage to continue, even thrive. One example is a certain kind of neutrino studies pursued by high energy physicists and astrophysicists working together in disused mines. Other examples include social science research that is interdisciplinary, collaborative, multi-sited, multi-method, and with multiple theories addressing issues that cut across multiple scales and exceed many limits, such as disaster studies.

If we accept the 50 year-old challenge of feminist epistemology, we must practice a more fluid, spectrum of epistemic possibilities, as, of course, found empirically around the world in many phenomena. We also accept the challenge that we are humans entangled in the processes and phenomena we study. To act as if that were not true, and calling that denial objectivity is bizarre, yet fiercely defended by many of our colleagues who want to 'observe' or 'listen' from a distance, but not be close enough to smell or touch, much less taste. Feminist epistemologists are not the first to have acknowledged that when we interact with the world it changes, as we do. Of course, thoughtful people have been making robust knowledge without dyads for millennia. Inspired by all that work, I am challenged to consider what we can learn and teach when we use different epistemic practices. How do triads or cognitive tools based on 3, 4, 5, 10, 12, or more make a difference? I tend to work with tools based on 4s, including tropological analysis. I'll elaborate on that, briefly. I'll point to graphic cartoons from around the world that are based on 4 images and ask how they are similar and different, plus how we might use those insights. I also look to how pathways, migrations, circulations, and rhizomes more than nodes shape knowledge making and makers, plus their strategies for success. One example is the study of migrating scientists; another is the study of knowledge made along historical and contemporary global trading routes.

Preparation and required reading:
Please make your own selection of relevant readings (by Sharon Traweek or others – see note on readings in the Introduction of the summer school programme for some starting points).

2.3 Lecture, Disciplinary, interdisciplinary, adisciplinary, undisciplinary – Living in the in-be(tween or building a new home?, Annemarie Horn

Inter- and transdisciplinary research often takes the form of collaboration between experts from different fields who integrate their knowledge to address complex societal issues. One of the main challenges is to integrate knowledge and define a joint course of action while coming from different traditions, representing different views of science, and holding different epistemic values and (implicit) assumptions. Living in this in-between space is reported to be taxing on researchers, and in particular for early career researchers who often conduct a substantial amount of the work in inter- and transdisciplinary research (Enright & Facer, 2014; Felt, 2013). As a possible response to this challenge, there are calls to discipline interdisciplinarity (Bammer, 2013) and handbooks (Repko & Szostak, 2021) introduce students to the "field of interdisciplinary studies". But this raises the questions what does it mean and imply to establish and mainstream an epistemic culture for interdisciplinary studies? How does this affect the critical study of interdisciplinary practices? What are the alternatives and what do they mean to (the study of) inter- and transdisciplinary research?

Required readings:

- Felt, U., Igelsböck, J., Schikowitz, A., & Völker, T. (2013), "Growing into what? The (un-) disciplined socialisation of early stage researchers in transdisciplinary research," *Higher Education*, 65(4), 511-524.
- Horn, A., Urias, E., Klein, J. T., Hess, A., & Zweekhorst, M. B. (2023), "Expert and non-expert at the same time: knowledge integration processes and dynamics in interdisciplinary teamwork," *Sustainability Science*, 18(5), 2357-2371.

Optional further reading:

- Enright, B., & Facer, K. (2014), "Early Career Researchers and Partnership Working: Reflections from the Field," in: *ECER Conference: The Past, Present and Future of Educational Research in Europe.*
- Bammer, G. (2013), *Disciplining interdisciplinarity: Integration and implementation sciences for researching complex real-world problems*. ANU Press.
- Repko, A.F. & Szostak, R. (2020), "The interdisciplinary research process," in: *Case studies in interdisciplinary research.* Sage.

2.4 Skills: Historical Document Analysis

As some of you might now, all WTMC training events also include a skills component. This time, we are focussing on the skill historical document analysis, a skill or method which is usually not mentioned in qualitative methods handbooks. The SAGE Handbook of Social Research methods, for instance, does not entail a chapter on historical methods (e.g historical document analysis). As preparation for this skills session, we would like you to read two short texts. The first one is a chapter from an edited volume titled *Organizations in Time. History. Theory, Methods* published in 2014. The chapter introduces concrete steps how to carry out historical document analysis and also reflects upon why historical document analysis/historical methods are often only poorly documented and do not show up in social science method handbooks. The second reading is a chapter from the above mentioned SAGE Handbook on metaphor analysis.

In preparation for this session, please select a short (max. 2 pages) historical document (or a document that will be considered 'historical' in the future) related to your research. In case your research does not include anything of the sort, we will also bring some documents to Soeterbeeck that you can work on during the session. During the session, we will split you in groups and will ask you to start doing a historical document analysis.

Required readings:

- M. Kipping, R.D. Wadhwani, and M. Bucheli (2014), "Analyzing and interpreting historical sources: a basic methodology," in: *Organizations in Time. History, Theory, Methods*, ed. by M. Bucheli and R.D. Wadhwani. Oxford University Press. pp. 305-329.
- B. Kutsyuruba and J. Basch (2023), "Metaphor analysis," in: *Varieties of Qualitative Research Methods*, ed. by J.M. Okoko et al. Springer. https://doi.org/10.1007/978-3-031-04394-9_50

2.5. Games evening

We'll make sure to bring some card games or board games that we can play in small groups – feel free to bring your own favourites along, too!

Wednesday, 10 July: Promissory Epistemics

3.1 Lecture: Promissory Epistemics, Sharon Traweek

I discuss knowledge making practitioners/communities/cohorts/ and clusters which take on projects that might well take decades to achieve their goals. I ask how they seek resources and recruits to pursue projects that while openly acknowledging that there is risk that the goals will not be achieved. I ask why they must build the new knowledge making infrastructures in which their work is embedded. Such promissory projects are most visible in big science and big technology projects, but the same patterns are found in the projects of some knowledge making practitioners, communities, cohorts, and clusters working at other scales. I ask how marginalized epistemic practices at large and small scale are similar and different. I describe epistemic projects that require the assemblage of resources (people, equipment, expertise, money, space, place, etc] while openly acknowledging the risk of failure reflect the epistemic risks; in what way is that risk central to the formulation of the project? One example is the International Linear Collider, imagined since the 1980s, as yet unrealized, although parts of it have been co-opted and appropriated into less risky projects.

How do precarious ideas, resources, personnel, ideas, and projects coalesce and survive, including the study of precarity itself, when the practitioners are working in an ecology managed and governed by standardized metrics for measuring excellence, innovation, prosperity, and efficiency? Knut Sorensen and I have been addressing that question the last few years through our participant-observation at his university and mine. As universities claim to be sites of entrepreneurship and innovation I explore how those claims are made and pursued in good and bad faith. I use the example of 4 new kinds of universities in Japan, each designed to intervene in conventional practices, 1973-2023. I ask to what extent those epistemic claims are made and pursued to increase dominion over property, including cultural and social capital. What happens when those claims are refuted? How is that epistemic contest resolved?

Preparation and required reading:
Please make your own selection of relevant readings (by Sharon Traweek or others – see note on readings in the Introduction of the summer school programme for some starting points).

3.2 Lecture: Hopes, promises and alternative futures: Rethinking academia in the age of climate change and AI, Kyriaki Papageorgiou

In an era marked by rapid technological advancements and the looming threats of climate change, the traditional paradigms of academic inquiry and education are facing unprecedented challenges. In this session, we will delve into the hopes and promises articulated in the context of alternative epistemologies and visions for the future of universities. By rethinking the roles, structures, and objectives of academic institutions in the 21st century, we aim to explore visions and roadmaps for an academia that can effectively contribute to a sustainable and equitable future.

Required readings:

- Baldy, C. R., Reed, K. P., & Begay, K. (2023), "Polytech to PolyTEK: Traditional Ecological Knowledge, Indigenous Science, and the Future Forward Polytechnic University," *Humboldt Journal of Social Relations*, *45*, 34–51. https://www.jstor.org/stable/48725118

- Haraway, D. J. (2016), "Sowing Worlds: A Seed Bag for Terraforming with Earth Others." In: *Staying with the Trouble: Making Kin in the Chthulucene* (pp. 1–8, Introduction & pp. 117–25, Chapter 6). Duke University Press. https://doi.org/10.2307/j.ctv11cw25q.5
- Lewis, J. E., Arista, N., Pechawis, A., & Kite, S. (2018), "Making Kin with the Machines," *Journal of Design and Science*. https://doi.org/10.21428/bfafd97b

3.3 Session organised by WTMC PhD reps: What can WTMC do to facilitate a healthy engagement with academic life and beyond for its PhD students?

During the annual WTMC event this year, the panel on PhD mental wellbeing and the discussions members had around the issue were received well by PhD students of WTMC, but several of them have also voiced that they would rather not let those discussions remain as they are. As representatives on the WTMC board we would like to have a session where attendees of the summer school will discuss the question of "*What can WTMC do to facilitate a healthy engagement with academic life and beyond for its PhD students?*". Our goal is to come up with specific resolutions that will then be put forward to the board's review and approval in the upcoming WTMC board meeting after the summer school.

Please note: While everyone's input is valued, this session does not constitute part of the official workload of our summer school. Especially for those who are not full PhD members of WTMC following the entire training trajectory, attendance is optional.

Thursday, 11 July: Epistemic Ethics

4.1 Lecture: Epistemic Ethics, Sharon Traweek

I explore how knowledge making practitioners/communities/cohorts/clusters treat each other and their work: how do they decide/adjudicate what is decent, good, right, and excellent; how do they correct transgressions? I ask how patterns in tolerated inequities correlate with silences and refusals in their primary epistemic projects. I examine the relationship between ethics and aesthetics as we build knowledge. How are tastes in topics, methods, research devices, data arrays, and interpretive strategies assembled and circulated in communities of practice? How is aesthetically pleasing work seen as 'good' for thought, teaching, and the knowledge makers. How are some epistemic aesthetics associated with certain kinds of ethics and how do practitioners address the dilemmas of elegant work done by those engaged in ugly actions with colleagues.

I discuss knowledge making practitioners who are effectively challenging intersectional inequities in their own communities who might be taking on new epistemic projects in new ways. I'm inspired by the work of Chanda Prescod-Weinstein and Flip Tanedo in physics. I also consider how departments, universities, research institutes, and scholarly institutes diligently and energetically chose to not challenge abuse, bullying, and violence, what Japanese call 'pawa hara' – power harassment – which of course has been endemic in knowledge making communities, as elsewhere. I give examples of refusals of care: when knowledge making communities do not protect their marginalization or even watch as they are violated. I ask: what do silence, whisper culture, and hegemonic projects share: all engage in the repressive violence of compulsory denial. All require learning to not see, hear, or feel wide arrays of experience. What does learning to make that repressive binary distinction teach us to do and ignore? What are the epistemic correlates of that denial and refusal? What are the epistemic correlates of care?

Preparation and required reading:
Please make your own selection of relevant readings (by Sharon Traweek or others – see note on readings in the Introduction of the summer school programme for some starting points).

4.2 PhD presentations 2

Please see PhD Presentation Guidelines in this programme.

Presenter: Joe Litobarski	Respondent: Shachi Mokashi
Presenter: Candida Sánchez	Respondent: Ayush Shukla
Presenter: Wytske Hepkema	Respondent: Esther Blokbergen

4.3 Lecture: Knowledge, self, and social order in an open science, Maarten Derksen

In this session, we will discuss a debate in psychology about the proper way to have an academic discussion. This debate became known as the 'tone debate'. Blogs and social media had created new, ostensibly open and non-hierarchical fora for academic conversation, that had momentous consequences for the social order of science. Behind the question of tone lay a complicated tangle of issues regarding power, inequity, and gender, as well as methodology and statistics.

Required readings:

- Gelman, A. (2016, September 21), "What has happened down here is the winds have changed." *Statistical Modeling, Causal Inference, and Social Science.* http://andrewgelman.com/2016/09/21/what-has-happened-down-here-is-the-winds-have-changed/
- Whitaker, K., & Guest, O. (2020), "#bropenscience is broken science," *The Psychologist*, 34–37.
- Derksen, M., & Field, S. (2022), "The Tone Debate: Knowledge, Self, and Social Order," *Review of General Psychology, 26*(2), 172–183. https://doi.org/10.1177/10892680211015636

4.4 Skills, Presenting and connecting at academic conferences: an embodied lens, Catelijne Coopmans

Academic conferences can be wonderful occasions for presenting one's scholarship and connecting with others. Yet feeling awkward, left out, or otherwise ill at ease is also part of the conference-going experience for many academics. In this session that will be partly talk and partly interactive exploration and discussion, we'll make sense of this paradox by looking at the social situation of the conference through an embodied lens. What is it like for our bodies and nervous systems to navigate the social dynamics of conferences? What strategies of regulating and co-regulating do we already employ, and how can we build on these intentionally and skillfully to make ourselves and others feel more at home when sharing our research? At the end of the session, we'll explore a specific tool to playfully prepare ourselves for even the worst conference moments.

4.5 *Movie night*

We'll make sure that the popcorn is ready!

Friday, 12 July: Epistemic Borders

5.1 Lecture, Epistemic spaces, places, and borders, Sharon Traweek

I examine, undermine, and revise the epistemic practices that many think are universal, or at least ought to be. By now much research has been done on how imperialism, colonialism, and racism have shaped the formation and circulation of knowledge making in many scientific, technological, and medical fields over at least the last 500 years, with increasing research on three millennia prior to that. We can ask how the epistemic tools forged in those ecologies have shaped not only the knowledge made, but also the ways we might still prefer to learn and know. How do we remove the extraction, appropriation, commodification, and exploitation from our epistemic tools so that we do not replicate the ecologies that made them.

The imbalanced dyads of user and used, saturated with political entitlement, extend into the ways we make knowledge; some of our strategies are marked as privileged and the others are decidedly not: written and oral, objectivities and subjectivities, even qualitative and quantitative research methods, plus the required narrative templates of third person pronouns and the passive voice, rather than the alternatives. Some still strive to be signifiers and never the signified, the knower and not the known. As Audre Lorde explained, those are the 'master's tools that make the master's house, the epistemic grammar of hierarchical control.

While doing fieldwork in Japan I often was asked by physicists to help them with translating their work for publication. I learned that plurals and singulars, especially abstract singular generic nouns, were not a concern in Japanese, yet Japanese did excellent research. As I studied the history of Japan's use and revision of scientific, technical, and medical tools and ideas from Europe, I found that they got those tools and ideas primarily from the Dutch so the entire body of knowledge and its practices were called the 'Holland learning' [*ran-gaku* 蘭学] requiring the study of Dutch language. The borders of knowledge making practices and pedagogies is a site where we can learn what epistemic practices circulate, how, the consequences, and the opportunities. We can also learn from all the knowledge makers and tools that have circulated along global trade routes by sea, land, and now air. What happens when we 'others' – the peripherals and the marginalized - do the appropriating and traveling in order to do something important to us. Rather than enforcing mimicry and obedience to a certain canon, we all can learn from the ruptures and the strategies designed to make use of the ruptures.

Preparation and required reading:
Please make your own selection of relevant readings (by Sharon Traweek or others – see note on readings in the Introduction of the summer school programme for some starting points).

5.2 Lecture, Crossing epistemic borders in India and in policy making, Wiebe Bijker

Drawing on his research in India, Wiebe Bijker will explore challenges and opportunities of treating different knowledge systems more symmetrically. Increasingly, the relevance of different knowledge systems is recognized in policy making and research funding too. One example of this offers the 2023-G20 Chief Scientific Advisers' Roundtable (G20-CSAR) in which Bijker acted as head of the Dutch delegation. At the same time, however, the questions spurred by the ideal of universal scientific knowledge continue to be pressing.

Required readings:

- Valkenburg, G., Mamidipudi, A., Pandey, P., and Bijker, W.E. (2020), "Responsible innovation as empowering ways of knowing," *Journal of Responsible Innovation* 7(1), 6-25. DOI: https://doi.org/10.1080/23299460.2019.1647087
- G20-Chief Science Advisors Roundtable (2023), Outcome Document.
- Office of the Principle Scientific Advisor to the Government of India (2023), "Diversity of Knowledge: People and Practices", in: PSA Dialogue Newsletter, 5-14 .
- Schäfer, D. and Mamidipudi, A. (2023), "Ownership of Knowledge: Introduction". In: *Ownership of Knowledge: Beyond Intellectual Property*, ed. by Schäfer, D., Mamidipudi, A., and Buning, M., MIT Press, 1-13. DOI: https://doi.org/10.7551/mitpress/14648.003.0004

Optional readings:

- Schäfer, D. and Mamidipudi, A. (2023), "Excavations of Knowledge Ownership: Theoretical chapter". In: *Ownership of Knowledge: Beyond Intellectual Property*, ed. by Schäfer, D., Mamidipudi, A., and Buning, M., MIT Press, 15-44. DOI: https://doi.org/10.7551/mitpress/14648.003.0005
- Mamidipudi, A., and Bijker, W.E, (2018), "Innovation in Indian Handloom Weaving," *Technology & Culture* 59(3), 509-545.

5.3: Closing Discussion and Farewells

We will wrap off our summer school with this closing session.

About the speakers

Sharon Traweek is an associate professor in the Department of Gender Studies and History at UCLA. Previously, she has been on the faculty of the Anthropology Department at Rice University and the Program in Anthropology & Archeology and to the Program in Science, Technology, & Society at MIT. She has also held visiting faculty positions at the Mt Holyoke Five College Women's Studies Research Center, the Anthropology Department at the University of California at San Diego, the Program in Values, Technology, Science, and Society at Stanford University, and Sokendai, the Graduate University for Advanced Studies, in Japan. Sharon Traweek has received her Ph.D. from the History of Consciousness Program at the University of California at Santa Cruz. Her first book *Beamtimes and Lifetimes: The World of High Energy Physicists* (Harvard University Press, 1988) remains in print and has been translated into Chinese (2003). Together with Knut H. Sørensen, she has published the book *Questing Excellence in Academia: A Tale of Two Universities* (Routledge, 2022). She has also published 25 articles in books and journals of anthropology, Asian studies, communications, cultural studies, history, and women's studies. She is currently working on two books, one on Japanese big science, and the other on crafting cultural studies of science, technology, and medicine. She has received the John D. Bernal Prize of the Society for the Social Studies of Science for her distinguished contributions to the field of STS. An interview with her about her work at the occasion of this prize was published in *Engaging Science, Technology, and Society* in 2020, and she was also interviewed for the Oral History Booth of STS Infrastructures in 2018.

Esha Shah is a feminist scholar who believes in moral power of ideas to change the world. And that's why she works with the knowledge institutions like University to be able to write, teach, and reflect on the history of ideas, debate them, contest them and hold them close to her heart. She is currently working as a lecturer with Wageningen University. She employs historical and anthropological methods in all her research, and more recently, she is increasingly using sources from popular culture (films and fiction) and (auto)biographical life-writings for her research and teaching. Her research interests mainly concern anthropology, history and philosophy of science and technology. Her significant recent publications include an edited volume on contested knowledges on large dams (2019); a review of globalising environmental justice movements against large dams (2021); a monograph on alternative history of genetic science *Who is the Scientist-Subject? Affective History of the Gene (2018);* and a critique of gene-editing technique The complexity of the gene and the precision of CRISPR: What is the gene that is being edited? (2021). At Wageningen, she is closely involved with the debates on decolonising higher education, including decolonising science and technology studies.

Annemarie Horn is assistant professor at Liberal Arts and Sciences, Utrecht University. In her research, she studies practices in inter- and transdisciplinary research with particular focus on the integration of diverse academic and non-academic knowledges, power and interests in multi-stakeholder collaborations, competencies, identities and roles of early career researchers, and the implications of "being interdisciplinary" and "doing interdisciplinarity" within a discipline-based academic system. Her current research builds onto the PhD research that she conducted at the Athena Institute at VU Amsterdam, which centered around inter- and transdisciplinary learning in a higher education context.

Kyriaki Papageorgiou is a Marie Curie fellow at the Department of Interdisciplinary Studies of Culture, Norwegian University for Science and Technology (NTNU), and a Visiting Associate Researcher at UCLA. She has a PhD in Cultural Anthropology from the University of California, Irvine and works at the intersection of anthropology, science and technology studies (STS) and innovation management. Her research has looked at the discourses and practices of innovation in tackling big societal challenges, and the emergent role of robots and AI in transforming work and our daily lives. She is currently studying the future of universities and academic work. Between 2016-2022, Kyriaki has led a collaborative pedagogical and research program on challenge-driven innovation (CBI) with CERN, Esade Business School, Universitat Politècnica de Catalunya (UPC) and Istituto Europeo di Design (IED) in Barcelona. She is the co-author of *Envisioning the Future of Learning for Creativity, Innovation and Entrepreneurship* (2022) and author of *Labs for Social Innovation* (2017). She is the recipient of numerous research grants from agencies such as the US National Science Foundation (NSF), the EU programme for research and innovation (FP7, H2020, Horizon Europe), the Wenner-Gren Foundation, and UNESCO. Kyriaki has worked at the Delegation of the EU in Egypt and served as an independent expert to the EU Directorate for Research and Innovation and Egypt's Ministry of Scientific Research.

Maarten Derksen is an associate professor in Theory & History of Psychology at the University of Groningen, and an alumnus of WTMC. His research currently deals with three topics. He is interested in the dynamic between control and resistance in behavioral engineering, about which he wrote *Histories of Human Engineering: Tact and Technology* (Cambridge University Press, 2017). He is involved in an ethnographic study of replication in science, the 'Replication in Action' project. And he studies the role of conversation in the production of knowledge in academia.

Catelijne Coopmans is a certified Co-Active Coach and Embodied Facilitator, as well as a former STS scholar. Having discovered STS and visual culture studies at Maastricht University, she let her enthusiasm for this kind of scholarship take her into an international career that involved stints at the University of Oxford (where she got her PhD in 2006), Imperial College London, the National University of Singapore, and Linköping University in Sweden. For both her STS research and her STS teaching she has won awards. Catelijne was a Collaborating Editor for *Social Studies of Science* from 2016-2021 and is still on the editorial board of the *East Asian STS Journal;* she also currently holds a guest-researcher affiliation with the University of Amsterdam. Now living in Spain, for the past seven years Catelijne has been building her own practice as a coach and workshop facilitator, helping academics and other creative people find authentic ways forward in their writing, their work, and their life. Her website is https://catelijnecoopmans.com.

Wiebe Bijker (1951) is professor emeritus at Maastricht University in The Netherlands and the Norwegian University of Science and Technology, Trondheim. With Trevor Pinch, he developed the Social Construction of Technology (SCOT) approach. Much of his recent work is related to the role of science and technology for development, Responsible Research and Innovation (RRI), and science and technology for democracy, diversity and inclusion. Bijker had been President of 4S, Director of WTMC, and Chair of the research council NWO-WOTRO | Science for Global Development. He is founding co-editor of the monograph series 'Inside Technology' at MIT Press. Much of his current activities are in science-advisory roles (mostly for the Dutch Research Council and the Dutch government, see overview here).

About the coordinators

Alexandra Supper is an assistant professor at the Faculty of Arts and Social Sciences, Maastricht University. Her research interests include the role of role of sensory skills in scientific practice, the construction of scientific authority and the dynamics of (inter)disciplinary communities. She serves as (associate) editor of the journals *Science and Technology Studies* and *Journal of Sonic Studies.* Alexandra holds an MA degree in sociology from the University of Vienna (2007) and a PhD in science and technology studies, which includes WTMC training, from Maastricht University (2012).

Andreas Weber is an associate professor in the research group of Knowledge, Transformation and Society (KiTeS) at the University of Twente. Most of his work examines the relationship between **science, technology and society** from a long-term historic, digital, and global perspective. Andreas has a special research interest in the coloniality of natural history collections, chemistry and sustainability. Moreover, he is involved in various digital cultural and natural heritage projects. Andreas holds a MA degree (2005) and a PhD, both from Leiden University (2012). He serves as editor of the Brill book series *Emergence of Natural History (ENH)* and as associate editor of the journal *Itinerario: Journal of Global and Imperial History.*

List of Participants

	First name	Surname	Affiliation	What is the topic of your research (5 lines)?
1	Stefan	Gaillard	Radboud University	I investigate the concept of overpromising and how it occurs in nanobiology. I start with a conceptualization of overpromising, indicating how it differs from other kinds of promises, and then analyze how (over)promises are expressed by nanobiologists in different media.
2	Daniella	Pauly Jensen	Maastricht University	My study is about how artificial intelligence (AI) systems for media are designed and implemented by data scientists, and how they deal with issues of diversity and bias.I use an ethnographic approach, particularly participant-observation of, and interviews with, data scientists, and analysis of their practices, documents, and artifacts. I will focus on 4 different AI systems for media that are being developed to generate subtitles, recommend videos, create trailers, and place ads.
3	Monica	Vasile	Maastricht University	My research examines the history of reintroductions of endangered species in the 20th century, providing new insights into histories of wildlife conservation and human-wildlife relations aimed at undoing imminent extinctions. My approach centers on non-human actors and animal agency.
4	Jill	van der Kamp	Radboud University	In the transdisciplinary project Check@Home, a screening programme for cardiovascular disease, chronic kidney disease and diabetes, I investigate the attitudes, needs, (ethical) concerns and real-life experiences among citizens with regard to the whole screening process.
5	Eliana	Bergamin	Erasmus University Rotterdam (EUR)	My research focuses on examining how the introduction of Artificial Intelligence affects emotional practices among stakeholders in healthcare. Specifically, I aim to investigate the changes AI brings to the role and expression of moral emotions like empathy, sympathy, and compassion among healthcare professionals and patients. My goal is to understand AI's impact on emotional engagement and moral decision-making within healthcare settings.

6	Tamalon e	van den Eijnden	University of Twente	I develop a grounded theory of transformative change in the context of environmental degradation and biodiversity loss. The theory it will be developed through reflexive engagement with material actions and practices of activist initiatives and in relation to specific visions and imaginaries of a better world; it radically question the status quo, it recognizes sustainability and research as inherently political issues.
7	Candida	Sánchez Burmester	Maastricht University	I use ethnographic and historical methods to work with scientists who are setting up a replication project in the nanobio-sciences, to study the role of conferences in controversies in this field, to follow the trajectory of a controversial nanoparticle, and to trace how nanotoxicology emerged.
8	Lotje	Siffels	Radboud University	My PhD is part of the 'Digital Good'-project, which investigates the 'Googlization of health'. Consumer tech companies are increasingly getting involved in the health domain. This project aims to investigate the different conceptions of the common good that are at stake in these new partnerships and to provide a normative framework for these new collaborations, through empirical philosophical methods and justification analyses.
9	Jessica	Coetzer	VU Amsterdam	I am to understand the mechanisms in digital care in the Netherlands that can either include or exclude people at a distance to the online world. My research uses systems theory and feminist STS approaches to analyse how power, policy and practice can be leveraged to either maintain or to prevent health inequities in a rapidly digitising world.
10	Gianna	Marsman	Vrije Universiteit	This research explores how structurally embedding reflexivity practices in the institutions of the healthcare system and in the habits of its individuals, can contribute to the long-term adaptability (sustainability) of that system.
11	Wytske	Hepkema	Radboud University	My research is about error correction in science. I am currently working on two smaller projects, the first is how researchers in the nanosciences align and realign their arguments, and how we could use this argumentative structure as a way to map error accusations. In the second, I want to find out how researchers construct something as an error. What goes through their mind when they decide something is an error? What are their next steps? If

				they have decided something is an error, what do they do then?
12	Marije	Miedema	Rijksuniversiteit Groningen	The future of our personal digital heritage: for whom do we preserve our and at what social and ecological costs?
13	Wisse	Van Engelen	Universiteit Twente	My research looks at foot-and-mouth disease (FMD) in northern Botswana through a multispecies lens. It studies how this disease has been framed, manipulated and managed by different actors; how current biosecurity measures impact human-animal relations, and how recent efforts at (transboundary) conservation are leading to policy reform, shifting disease geographies, and a restructuring of disease ecologies.
14	Esther	Blokbergen	Vrije Universiteit Amsterdam	Transdisciplinary boundary crossing and competencies for boundary navigation - a postcolonial feminist approach
15	Sarah Rose	Bieszczad	Leiden University	My research focuses on how shifts in science policy to valuing societal relevance shapes knowledge cultures of deep sea research. During my fieldwork, I came to be fascinated/ frustrated by deep sea mining and how it is proposed as the solution to the clean energy transition.
16	Ana	Parrón Cabañero	Leiden University	My study will attempt to explore the diversity of OS practices among academics, to understand the motivations, habits and values behind such practices, and to observe their alignment with existing policies. I seek to identify common threads while also recognising the contextual nature of research practices, and therefore the need for a combination of overarching and localized policies, or situated solutions (Leonelli, 2023).
17	Aisa	So	Utrecht University	The new transdisciplinary CropXR project aims to create "new intelligent breeding tools for extra-resilient crops." But what does 'resilience' mean? And according to whom? Within the CropXR consortium, we investigate what 'resilience' means to various agricultural stakeholders, and how these understandings are shaping - and shaped by - the agricultural system. We aim to integrate the identified diversity of understandings into the project.
18	Lenn	Gorissen	University of Twente	My research adopts a practice-based approach to studying agricultural sensors by examining farmers' sensing practices and the visions and imaginaries of key actors involved in sensor development. This will serve as a basis for deducing requirements and

				options for responsibly governing sensors for ecology-based farming.
19	Shachi	Mokashi	Vrije University of Amsterdam	I study the entanglements between citizen science initiatives and formal institutions in the context of environmental and public health governance. By mapping the emergence of citizen science initiatives, practices, and technologies, this project aims to understand the collaborations and contestations between citizen scientists, scientists, researchers, and policymakers.
20	Efe	Cengiz	Unşversity of Groningen	How can paying attention to the knowledge of local more-than-humans in the Aegean olive landscapes help us in re-configuring our knowledge infrastructures to produce knowledge for generating liveable global futures?
21	Joe	Litobarski	Maastricht University	My research topic is on teledemocracy projects and the emergence in the 20th century of professional communities and transnational networks of teledemocracy practitioners and advocates promoting "electronic democracy". I'm particularly interested in the intersection of teledemocracy with cybernetics, information theory, neoliberalism or the early history of Artificial Intelligence and neural networks. I'm also interested in contemporary public debate around the future of democracy and social media, algorithms, and AI.
22	Ayush	Shukla	Vrije University Amsterdam	My PhD project is part of the Horizon Europe MSCA Doctoral Network MELOMANES. The MELOMANES consortium is a training-by-research project on an innovative immunotherapy treatment enhanced by nanoparticles. As an embedded STS researcher in the MELOMANES consortium, I will explore how reflexive and responsive capacities can be developed and integrated into cancer nanomedicine R&D to align research practices and agendas with societal needs and concerns and to critically reflect on social and future consequences of the research itself while navigating its inherent complexity and uncertainty.

23	Esther	Baar	Rathenau Instuut	I am a (junior) policy researcher focusing on power relations between scientists and non-scientists (mostly citizens and citizens' organizations) as enacted in transdisciplinary research programs and projects. By exploring practical, sensuous and aesthetic questions like 'what should a meaningful transdisciplinary collaboration look, feel or sound like' and 'how do and can we imagine knowledge (dis)integration,' I hope to contribute to the creation of socially and epistemologically just STI-policies. To explore these questions, I blend together my academic (American Studies, Biomedical Sciences) and non-academic (activism, creative writing, Tarot) practices and backgrounds.
24	Ilse	Dijkstra	Maastricht University	I study how post-war scientific practices in the Netherlands have co-shaped classifications of socioeconomic health inequalities and have made up 'unhealthy people of low socioeconomic status' and 'healthy people of high socioeconomic status'. Theoretically, draw from STS (infrastructural work, valuation of evidence), health humanities (cultural norms of health/social status) and political philosophy (politics of recognition). Guided by historical and qualitative methodologies, I study sites where classifications have been (un)made: scientific infrastructures, administrative and professional sites, and counter cultures. In historical witness and stakeholder seminars, I will reflect on the findings with developers and users of the classifications as well as with classified individuals.
25	Charlotte (Lot)	Tiebosch	Erasmus University	Structural vulnerabilities in access to healthcare and support services
26	Nando	Katoele	Erasmus University	Politics at the Bedside: In this doctoral research project, I will focus on the daily considerations and choices made by healthcare providers in the context of scarcity; choices they make on a day-to-day basis, and which may seem run of the mill, but do have major consequences for the quality, continuity and accessibility of healthcare.
27	Jenske	Bal	University of Liege / University of Amsterdam	My research is about the conservation of genetic diversity of cows in the Netherlands, for which I focus practices and technologies of gene banking, farming, registering and data analysis. I am interested in how the future of Dutch cows and breeds is shaped, how breeds are made through categories and data, and to the refiguring of metabolic relations between cows and their ecosystems.

28	Hanna	van Bentum	Leiden University	I am conducting research on the concept of 'truth' within the policymaking process, particularly in the context of a 'post-truth era'. How do policymakers integrate divergent knowledge claims into their routine operations? Furthermore, can adopting a more horizontally-oriented approach to fundamental knowledge claims lead to a policymaking process that better acknowledges conflicting perceptions of truth and legitimacy regarding specific policy matters? My focus lies specifically on exploring the connection between epistemology and democracy.
29	Hanneke	de Boer	University of Groningen	My research is an interdisciplinary project on menopause, connecting the fields of history and psychology. The project aims to investigate the historically constructed social-cultural attitudes towards menopause, and how these influence women's experiences of the menopause.
30	Sevgi	Fruytier	Vrije Universiteit Amsterdam	Patient involvement in health research
31	Nina	De Bakker	Vrije Universiteit Amsterdam	Ethnography on how neighbourhood initiatives and active citizens in Amsterdam Southeast aim to reduce health inequalities. As many neigbhourhood initiatives and active citizens focus on sustainable food transitions, this is a big part of my project.

PhD Presentation guidelines

For presenters

- Send the title & summary of your presentation to the discussant assigned to you at least 1 week before the summer school.
- A projector and PC are available. Copy your presentation onto the PC in advance. You may want to use your own laptop, which usually works fine, but mind that it poses an extra risk of technical issues. Also, if you have video material, make sure you have it downloaded locally. There is internet, but relying on YouTube etc. is risky.
- The duration of your presentation should be **15 minutes**. Then there is another 15 minutes for the discussant and plenary discussion. We keep time very strictly.
- Make an informed choice on what you want to present. One typical pitfall is wanting to give an overview of your whole PhD project, which leads to an unfocused and overloaded presentation. Rather select an interesting aspect of your research that you would like to receive feedback on at this moment, and discuss it in-depth.

For discussants

- Make sure you receive the title & summary of the presentation at least 1 week before the summer school. Contact the presenter if needed to remind them of this.
- After the presentation: join the presenter in the front of the room
- Present your comments in **5 minutes** max.
- Mind that being a discussant is not about pointing out all the flaws in the presenter's argument, but about setting the stage for a constructive discussion. Offering critique is good, but also try to bring out what the potentials of the argument are for improvement, and to identify some questions for the speaker or the group as a whole.
- You may want to get in touch with the presenter to prepare some comments. Feedback should address the quality of the presentation itself (slides, clarity, focus) as well as its content.

All others

- Listen carefully and attentively to the presentation.
- Please fill in a **feedback sheet** for each presentation, clearly stating your name so that the presenter has the chance to ask follow-up questions or clarifications. These sheets will be collected and given to the presenter. Make sure to keep your feedback constructive and helpful - see next page for possible points of attention.
- Join the discussion after the discussant has given their feedback.
- Chances are that there is not enough time to discuss all questions from the audience. Please write them down on the feedback form. Even without discussion, your questions might be very valuable for the presenter!

Feedback on Presentations

This is to help you give feedback to your fellow participants, some of whom will be presenting their research during this event. Blank paper on which to write your feedback will be available at Soeterbeeck. Use a separate sheet for each presentation, put your name and that of the presenter at the top of a piece of paper. That way, if something isn't clear, the presenter knows whom to ask. Write your comments during or immediately after the presentation and give them to the presenter during the next break.

Points to consider when preparing feedback (you don't need to cover everything):

- Attractiveness of title and opening
- Clarity and significance of problem definition, research questions and aims (refinement of, addition to, clarification or rejection of an existing thesis)
- Use of theory and/or historiography (concepts, interpretations, etc.)
- Embeddedness in fields relevant to WTMC
- Clarity of structure
- Presentation of the method(s) employed
- Validity and reliability of the method(s) employed
- Accessibility of the research data to the audience
- Use of (intriguing and relevant) details and examples
- Clarity of argument
- Relation to the nature and level of expertise of audience
- Use of PowerPoint and other audio-visual resources
- Contact with audience and audibility of speech
- Clarity and significance of conclusions
- Response to questions and comments
- Time management

Regardless of what aspects you decide to focus on in your feedback, make sure to keep the tone of your feedback constructive and supportive!