



SKETCHING THEORY

Introducing the pictorial format

Maarten Smith m.l.smith@tue.nl
Eindhoven University of Technology
Dept. of Industrial Design [0000-0001-8824-7689](tel:0000-0001-8824-7689)

Sander van der Zwan s.v.d.zwan@tue.nl
Eindhoven University of Technology
Dept. of Industrial Design [0000-0003-0590-6648](tel:0000-0003-0590-6648)

Ludger van Dijk ludger.vandijk@uantwerpen.be
Eindhoven University of Technology
Dept. of Industrial Design &
University of Antwerp
Dept. of Philosophy [0000-0002-8681-1722](tel:0000-0002-8681-1722)

Jelle Bruineberg jelle.bruineberg@mq.edu.au
Macquarie University, Sydney
Dept. of Philosophy &
University of Copenhagen
Dept. of Communication [0000-0001-5675-3376](tel:0000-0001-5675-3376)

Caroline Hummels c.c.m.hummels@tue.nl
Eindhoven University of Technology
Dept. of Industrial Design [0000-0003-1630-7886](tel:0000-0003-1630-7886)

Article type: Research article pictorial

Review process: Editorial review

This open access article is published with a Creative Commons CC-BY 4.0 license

<https://creativecommons.org/licenses/by/4.0/>



DOI: [10.59490/jhtr.2023.1.7026](https://doi.org/10.59490/jhtr.2023.1.7026)

ISSN: 2773-2266

Submitted: 21-09-2022 **Accepted:** 09-03-2023 **Published:** 16-November-2023

How to cite (APA): Smith, M. L., Zwan, S., van Dijk, L., Bruineberg, J. P., & Hummels, C. C. M. (2023). Sketching theory: Introducing the pictorial format. *Journal of Human Technology Relations*, 1(1), pp.1-10. <https://doi.org/10.59490/jhtr.2023.1.7026>

Corresponding author: Maarten Smith

©2023 Maarten Smith, Sander van der Zwan, Ludger van Dijk, Jelle Bruineberg & Caroline Hummels, published by TU Delft OPEN on behalf of the authors.



Figure 1: A designer and philosopher finding common ground through sketching.

Keywords

pictorial, sketching, design, theory, postphenomenology

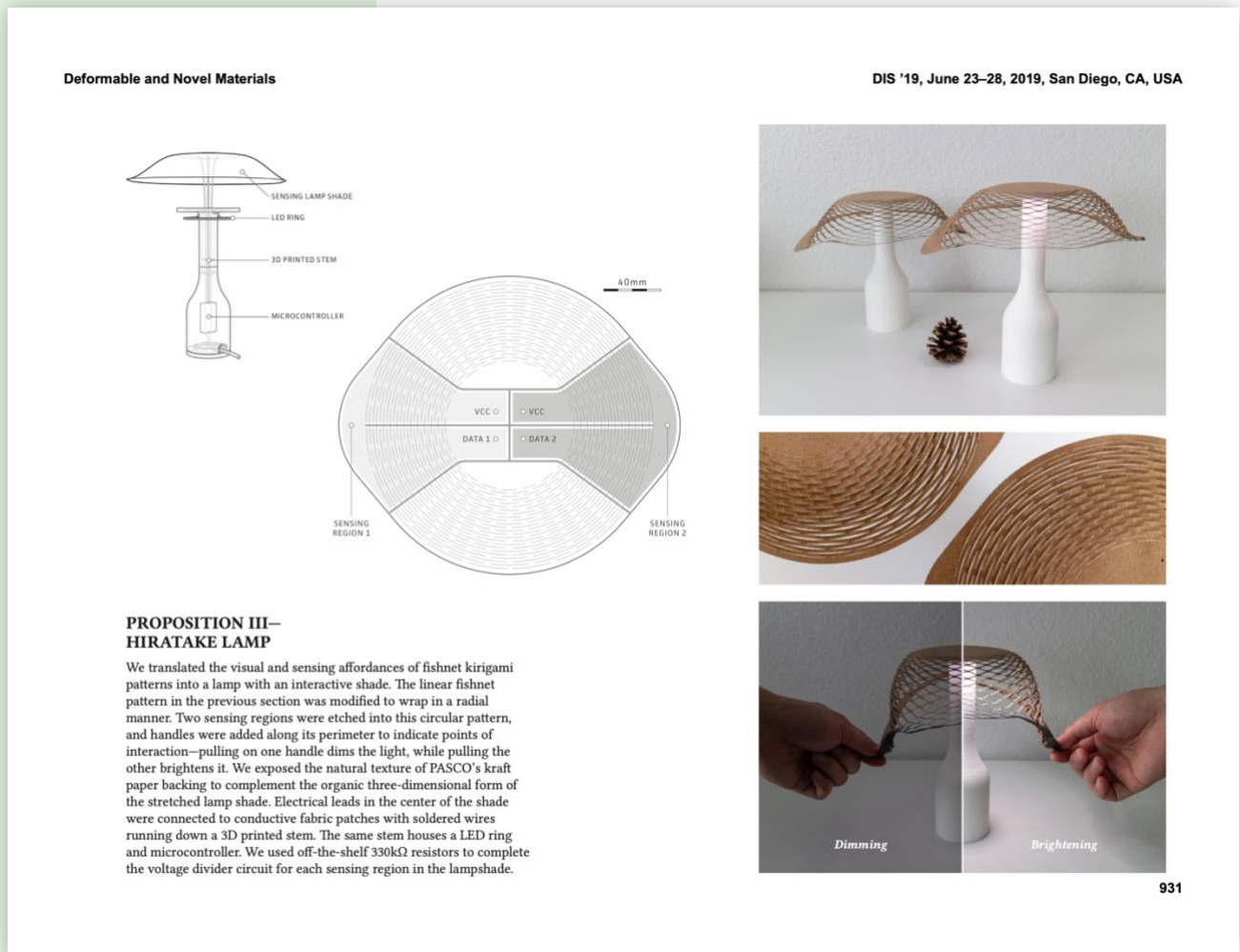
Abstract

The Journal of Human-Technology Relations is committed to investigating human-technology relations from a wide range of academic disciplines and subdisciplines in the humanities and social sciences, from design to philosophy and everything in between. To provide a space for productive correspondence with these practices the journal offers authors the possibility to submit pictorials. Pictorials take seriously the mutually constitutive relation between material process and product. They are papers in which visual components (e.g. diagrams, sketches, illustrations, renderings, photographs, annotated photographs, gifs) play an important role. At a minimum, these visuals do more than support the text. At their best, they work together with the text in a way that makes meaning irreducible to either medium alone. In this pictorial we demonstrate this scope by example, making a philosophical argument with more than textual means.

How should we read a pictorial? How should we understand it? Answering these questions implies answering our research question of *what makes a good pictorial*. The text in this green sidebar is here to consider these questions and give some guidance to those encountering the format for the first time. We found it most productive to read the entire main text first, followed by reading the green sidebar. But we leave this order up to you.

1 INTRODUCING THE PICTORIAL

The pictorial format was born out of practical necessity. Design researchers found that they could not do justice to many types of research activity using text. Currently, the format is used for multiple reasons. Researchers use pictorials to showcase the visuals that they consider research contributions in their own right (see e.g., Desjardins et al., 2016; Logler et al., 2018). Or they use the pictorial format to share knowledge about their materials (see e.g., Karana et al., 2016; Zheng et al., 2019). Here is an example:



For the sake of clarity, this sidebar follows the structure of a traditional research paper alongside the pictorial. We demonstrate a way of looking and reading pictorials in hopes that visuals might become arguments in their own right, that raise questions uniquely distinct from those that can be pursued through text alone.

Figure 2: A pictorial that shares knowledge about materials: Sensing Kirigami, by Clement Zheng, HyunJoo Oh, Laura Devendorf, and Ellen Yi-Luen Do, © 2019.

Method

The materials and procedures of pictorials are unlike those one might be accustomed to. They use text, but also heavily rely on pictures, sketches and the like. Let's consider the materials used in this pictorial and how they relate.

Sometimes, authors make use of the pictorial format to experiment with different argumentative forms or ways of engaging the reader that regular formats would not afford. For example, Peeters and Trotto (2018) invited readers to 'connect the dots' and explore relations between motion-tracking data and the movement of dancers:

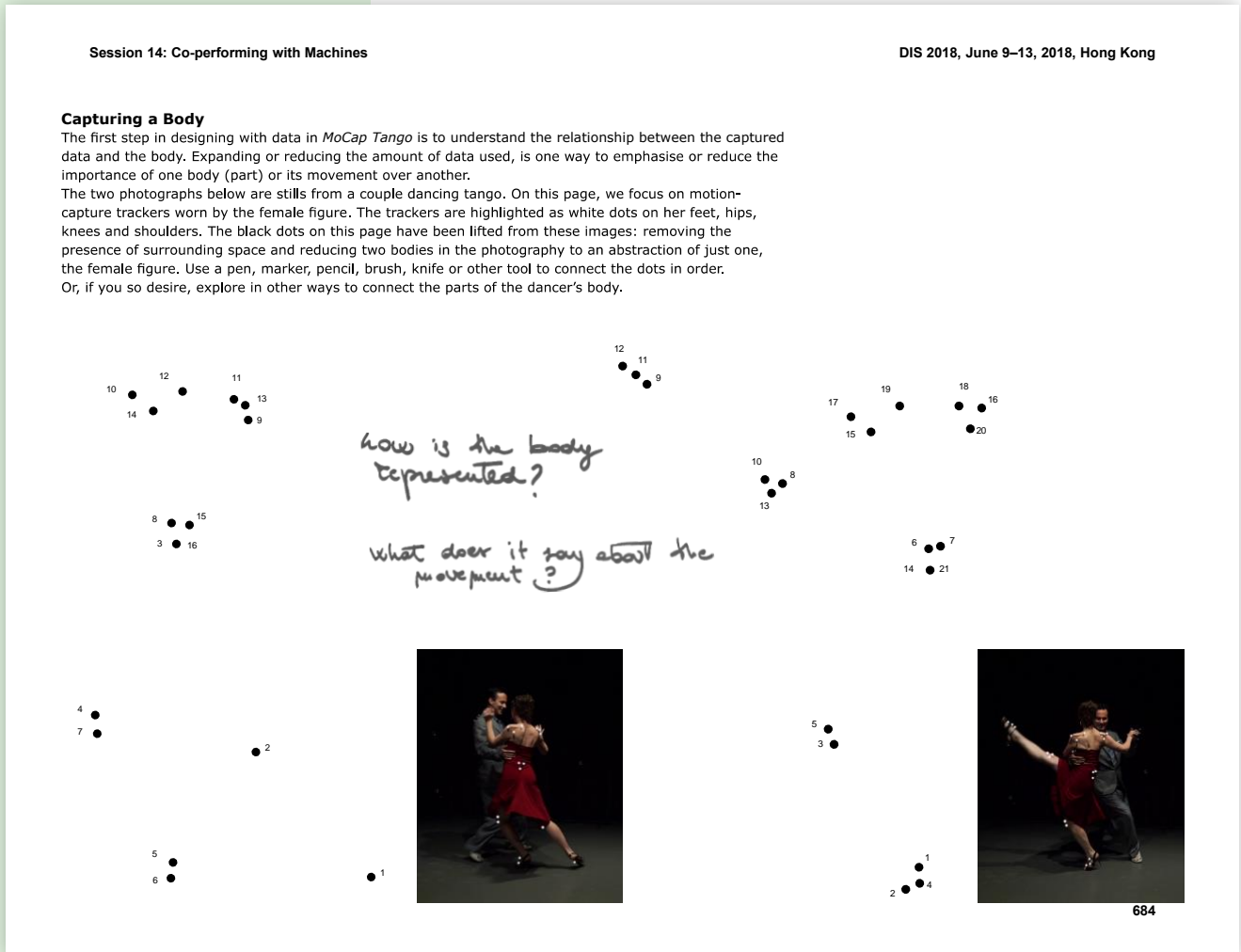


Figure 3: The authors challenge readers to explore ways of relating raw coordinate data to the movement of dancers by inviting them to "connect the dots". Jeroen Peeters and Ambra Trotto, © 2018.

These examples show how the material process of a design inquiry is tightly bound up with its product, in this case a printed pictorial. The same goes for the material process of a philosophical inquiry and its products, which are often papers and books. The pictorial is a new medium which therefore makes the exploration of new messages possible. By offering a pictorial track, the *Journal of Human Technology Relations* allows authors to explore a format where methods and challenges from diverse practices might intermingle.

Materials

One of the materials used in this pictorial is ready-made pictures. Figure 4 fulfills a particular function. Like visuals in most research papers, this figure serves as an illustration that supports an argument made in the text.

The inseparable relation between material process and product is familiar to designers. Take, for example, the design of a surfboard. In a very practical sense, a designer might change the fin setup on a board to tune its stability in the water. But in order to adjust the boards buoyancy they would work with other materials, like using a belt sander to reshape the board's foam core in Figure 4. Understanding the reciprocity of process and product, designers learn to use different materials to achieve different outcomes.



Figure 4: Shaping a surfboard's foam core. Photo by Sander van Eck, © 2022.

Figure 5 also plays a supportive role, but in relation to the paragraph on the right it has a different function. It works as an example of the role of drawings in a reflective process. We'll come back to this role in the discussion.

Why would this be any different for philosophical practice? A group of philosophers might reflect on a concept by drawing it, as in Figure 5. In these cases, the drawings are part and parcel of a philosophical process.



Figure 5: Thinking through sketching

Besides photographs, this pictorial uses drawings and sketches (e.g., Figure 6 and 7). And all these combined with text. Figure 6 is an example that depicts the role of drawings in an argument. How might text and visuals work together?

Procedure

With the aim of understanding what makes a good pictorial, we explored a variety of visuals. In this study we engaged with these visuals by pointing to particular aspects, discussing, questioning and redrawing them. Some of the drawings in this pictorial were redrawn as often as 20 times before they were included in the results. Over time we learned new ways of looking at and engaging with visuals. This way of looking is the primary result shared here.

And so here is an argument:

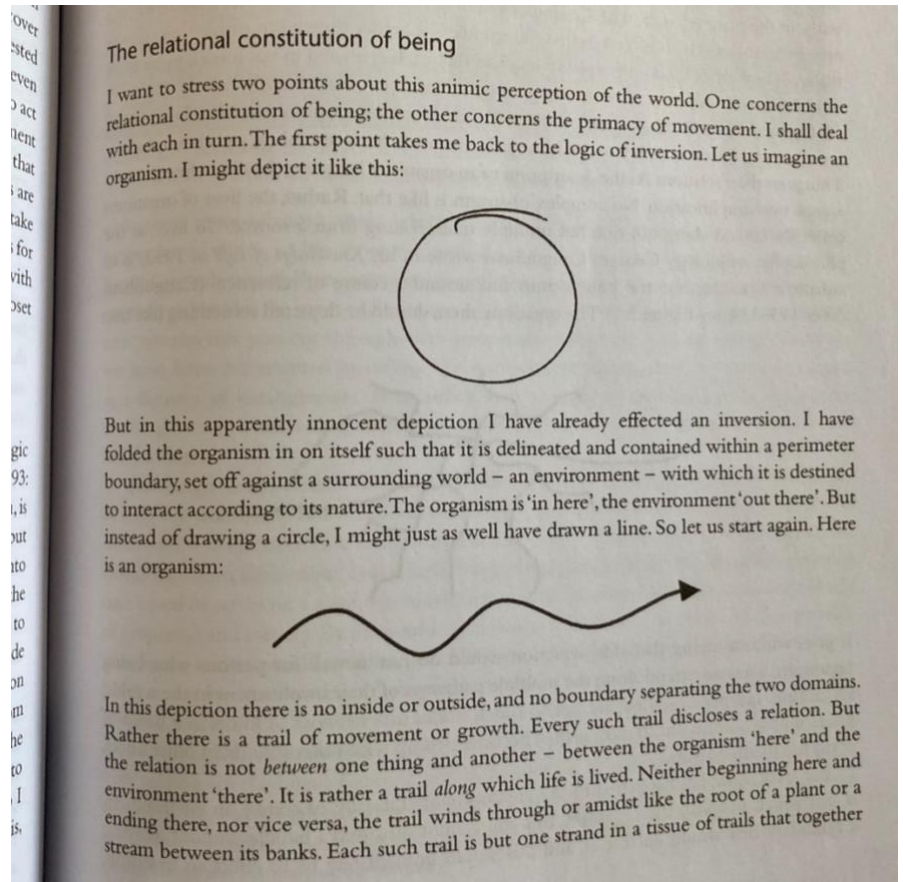


Figure 6: A pictorial argument (Ingold, 2011, p.69).

Ingold (2011, p.69) weaves drawings through writings to arrive at a product, a particular argument in a book, which he might have not arrived at by writing alone.

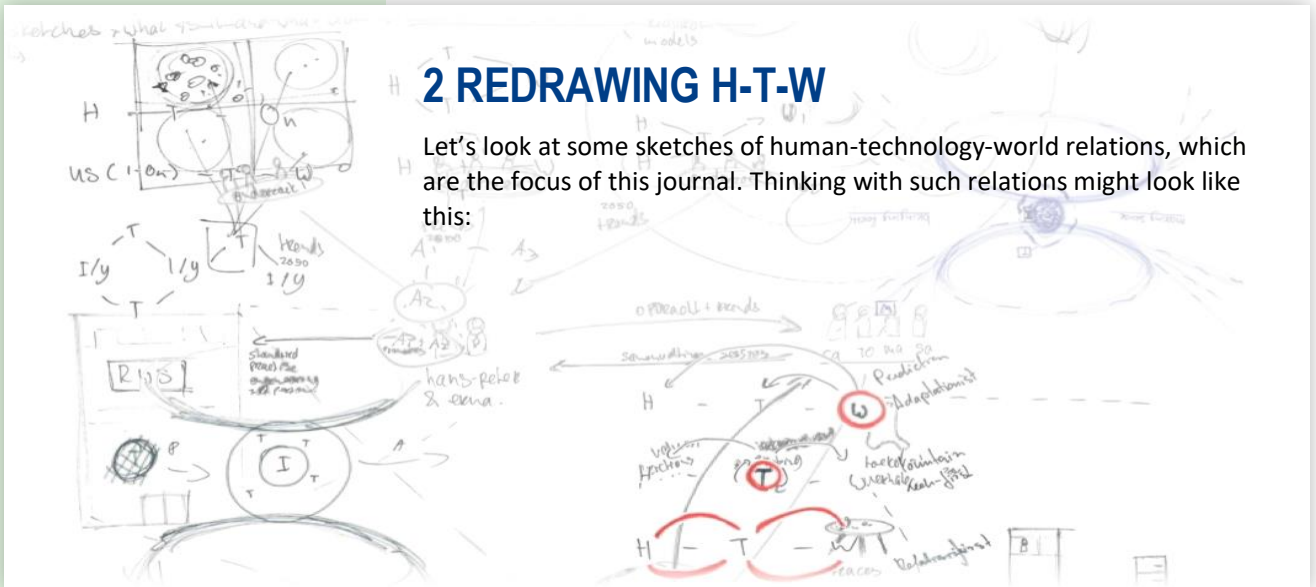


Figure 7: Sketches we used to find common understanding in our team of designers and philosophers

Results

How did we look at and work with visuals? First, we situated them in the discourse. For example, Figure 8 depicts technological mediation. This is a central idea in postphenomenology, a strand of philosophy that conceptualizes how technology co-shapes our action, perception and understanding of the world (Ihde, 1990; Selinger, 2006; Roserberger and Verbeek, 2015). Once this context was understood we were able to carefully look and question the visualization. What does it argue? What are its features and flaws?

We looked at the arrows in Figure 8 and questioned their use as relations distinct from the dashes between human, technology and world. Are these causal arrows? Does the upper arrow mean that the world causes perception in the human? Or are they perhaps meant to indicate a constitutive relation, and does the arrow mean that technology shapes the way the world shows up for humans? Does the lower arrow mean one acts *in* the world or *on* it?

We explored this schema by intervening in it and observed what happened if we drew it differently. We asked these questions and redrew their effects. To show our way of looking, the figures that lead us to these questions have been reproduced on the right.

In postphenomenological discourse, these relations are often depicted using a human-technology-world (H-T-W) schema. This schema depicts technological mediation: technologies are not passive instruments, but rather actively mediate relations between humans and the world.

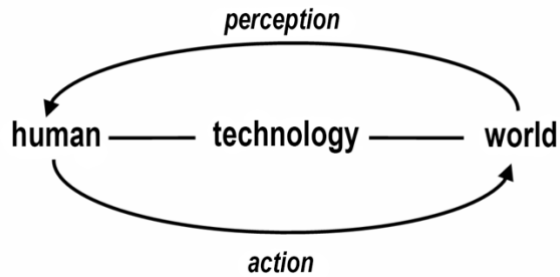


Figure 8: Verbeek's drawing of technological mediation (2006, p.3).

In this figure, technology is centred between a human and the world. But which visual relations are important in this schema? For instance, does it matter that the entire world is equal to the size of a single human? Shouldn't the world be much bigger?

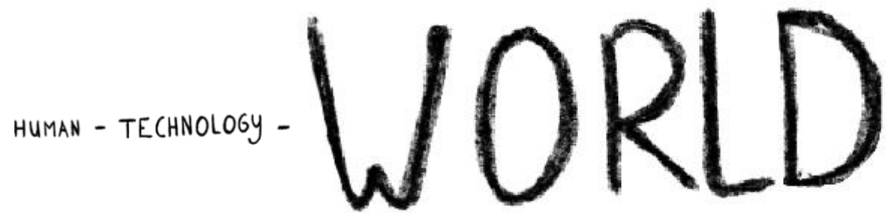


Figure 9

Like this?

Figure 8 shows human and world revolving around technology. While human and world take shape dynamically, technology is excluded from this process. Where then would technology come from?

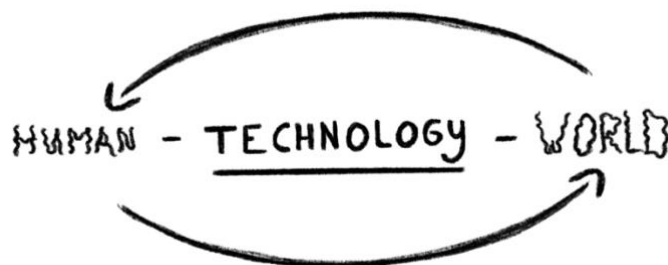


Figure 10

To get this aspect in view, Olya Kudina drew the relation between human, technology and world differently (Figure 11).

With this way of looking, we can now approach the H-T-W schema once more, this time through the work of Olya Kudina (2021). We tried to make an argument almost entirely through visual means (Figures 11, 12 and 13). By drawing, we attempted to reveal some of the ambiguity of the lemniscate: the direction of the arrows can be read in two ways, both with different consequences.

Kudina introduced the hermeneutic lemniscate as a tool to understand how people appropriate technologies (2021). Let's explore Kudina's conceptualization by drawing:

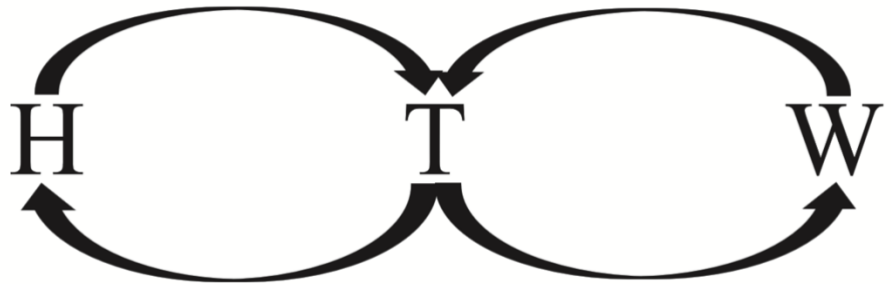


Figure 11: Kudina's hermeneutic lemniscate of technological mediation (2021, p.244).

We can read this lemniscate as a closed system that loops through the human, a technology and the world (Figure 12). We can also read it as two circles that fold in on each other (Figure 13). Following Ingold (Figure 6), in each case new questions emerge. For example, if we read the lemniscate as two circles (Figure 13), are we not at risk of understanding human and world as growing apart by technology?

Should we understand the figure like this?

Or like this?



Figure 12

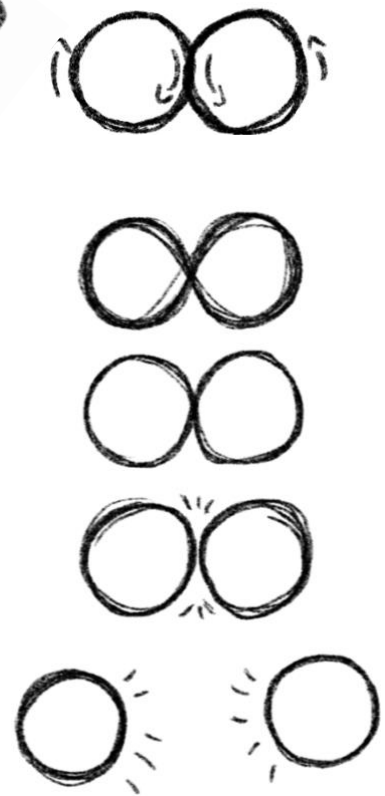


Figure 13

Could these drawings form an argument in itself?

The pictorial format allows visuals to play a more than supportive role or even for them to be developed as arguments in their own right.

Conclusions

What makes a good pictorial? Our study suggests at least three answers to this question. First, pictorials allow for visuals to work with text in a way that makes meaning irreducible to either medium alone. Minimally, the visuals thus support the text, as we saw e.g. in our use of Figure 1 or 4. Maximally they transform it. We tried to show, for instance, that visuals can become arguments in their own right (e.g. Figure 6 or Figure 13). Perhaps they can raise questions uniquely distinct from the kinds of questions that can be pursued through text alone.

Second, pictorials allow researchers to document creative processes in their own terms. A good pictorial does this in such a way that readers might learn something they could not have otherwise. In Figures 9 and 10 we tried to provide an (admittedly simple) example of this by exploring the significance of visual elements. By drawing and redrawing we found new ways of understanding the original figure. Now imagine the transformative process that the maker of Figure 14 went through to arrive at their drawing. Through pen and paper the maker, among other things, explored the relation between the abstract H-T-W model and the concrete situations it aims to pick out. A pictorial is perhaps the only format that could document the maker's journey, and allow them to share something of their way of looking in the process.

We have used of a variety of visuals to show how one can read and understand this pictorial. Ultimately however, in providing a space for productive correspondence between different (sub)disciplines, the practice of making and reading pictorials is a work in progress. This brings us to our third and final answer to the question of what makes a good pictorial. As a novel practice the norms for the pictorial are themselves still in the making. Ours was but a first attempt to cultivate some of the skills required and thus develop the practice further.

3 DISCUSSION

We've looked at photographs, schemas and drawings. But skillful use of many other materials can shape thought. What new arguments will this pictorial format make possible? The pictorial format provides a medium through which methods and challenges from a variety of practices might intermingle in a productive way.



Figure 14: Refining thought by refining skills

In a process of designing, each product is unfinished and can be the start of new theoretical developments. We therefore invite you to continue with your own writings, drawings and thoughts.

The *Journal of Human Technology Relations* is offering the pictorial format in order to nurture the coming together of diverse research practices in new and unforeseen ways. We welcome the readers of the journal to make this new practice together.

Data access statement

No new data was generated or analyzed.

Contributor Statement

Maarten Smith, Sander van der Zwan, Ludger van Dijk, Jelle Bruineberg and Caroline Hummels were all responsible for the conceptualization of this paper. Maarten, Sander and Ludger were involved in drafting the paper. Caroline, Maarten and Sander were involved in its visualizations. Caroline and Ludger had a supervisory role. Maarten was responsible for reviewing and editing the paper.

Acknowledgements

We thank Pierre Lévy, Lillian Wilde and Sanneke de Haan for their thoughtful insights on philosophy with sketching. We also thank Peter-Paul Verbeek and Olya Kudina for their stimulating discussions about the pictorial format and for making this format possible. We also express our gratitude towards the Stimuleringsfonds, which provided financial support for several of the research activities out of which this pictorial emerged.

References

- Desjardins, A., Wakkary, R., & Odom, W. (2016). Behind the lens. *Proceedings of the 2016 ACM conference on designing interactive systems*. <https://doi.org/10.1145/2901790.2901910>
- Ihde, D. (1990). *Technology and the Lifeworld* (1st ed.). Indiana University Press.
- Ingold, T. (2011). *Being alive: Essays on movement, knowledge and decription*. Routledge.
- Karana, E., Giaccardi, E., Stamhuis, N., & Goossensen, J. (2016). The tuning of materials. *Proceedings of the 2016 ACM conference on designing interactive systems*. <https://doi.org/10.1145/2901790.2901909>
- Kudina, O. (2021). "Alexa, who am I?": voice assistants and hermeneutic lemniscate as the technologically mediated sense-making. *Human Studies*, 44(2), 233-253. <https://doi.org/10.1007/s10746-021-09572-9>
- Logler, N., Yoo, D., & Friedman, B. (2018). Metaphor cards. *Proceedings of the 2018 designing interactive systems conference*. <https://doi.org/10.1145/3196709.3196811>
- Peeters, J., & Trotto, A. (2018). Designing expressions of movement qualities. *Proceedings of the 2018 designing interactive systems conference*. <https://doi.org/10.1145/3196709.3196805>
- Rosenberger, R., & Verbeek, P.-P. (Eds.). (2015). *Postphenomenological Investigations*. Lexington Books.
- Selinger, E., & Varn, J. M. (2006). *Postphenomenology: A Critical Companion to Ihde*. SUNY Press.
- Verbeek, P. P. (2006). Persuasive technology and moral responsibility: Toward an ethical framework for persuasive technologies. *Proceedings of PERSUASIVE 2006*.
- Zheng, C., Oh, H., Devendorf, L., & Do, E. Y. L. (2019). Sensing Kirigami. *Proceedings of the 2019 designing interactive systems conference*. <https://doi.org/10.1145/3322276.3323689>