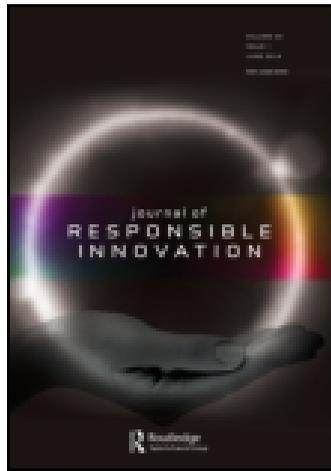


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On the hermeneutic need for future anticipation

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DISCUSSION PAPER: RESPONSE

On the hermeneutic need for future anticipation

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In his discussion paper on responsible innovation, Alfred Nordmann (2014) questions whether responsible innovation requires knowledge about the future. In a series of 15 remarks, which are presented in an eloquent and erudite way, he unfolds ideas that partly build on each other and partly overlap. Since this approach makes it a little difficult to identify the exact remarks I want to debate, I will distill three claims from his text:

- (1) Scientific knowledge of what will happen is of limited use to action. This principle is illustrated by the example of the physics students who know the law of inertia but cannot drop the ball at a specific location. Basketball players, by contrast, are able to handle the ball but know nothing about the law of inertia. What is needed to act well in the future, according to Nordmann, is not knowledge, but ‘a capacity to deal with the unexpected, to be resourceful and quick at social learning’ (Nordmann 2014).
- (2) To prepare for those unexpected (and possibly adverse) events in the future, one should be informed *not* about anticipations of the future but by experience, precedent, and history. Responsible innovators and assessors of emerging technologies should learn from historians of science, technology, and science policy. Anticipations and assessments of the future are not worthwhile because the future world is different from ours, not only because the future world is furnished with different technologies that we do not yet know but also because the people in this future world are different and have different values. We would therefore not know on the basis of what values (present or future ones) we should assess that (view of the) future.
- (3) Predictions or anticipations of the future are in vain, but imaginations of the future continue to be worthwhile as thought experiments. Envisioned alternative worlds can point out how the present world is lacking, and indicate a general direction of change (as in utopian descriptions). While we should refrain from thinking that the world will in fact unfold in the imagined way, or that we are capable to effectuate that change (the future is not an object of design, nor is it ‘in the making’), imaginations offer an attractive view of a better world, which should be judged for their desirability on the basis of present values. Visions of the future offer a ‘measure of progress’.

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These claims are thought-provoking, because they reveal a particular view of how human beings relate to the world, to values, and to the future that lie very close to my own. Yet I do not agree with the general conclusions of Nordmann's arguments. While he considers anticipations of the future that may be employed in plenty of contexts (including policy making, governance activities, citizen engagement, etc.), I will here focus on their function in the work of ethicists or humanists who are active in the laboratory to enhance reflection amongst researchers at an early stage of research into a technology.

The general starting point for Nordmann's approach is here summarized in the first claim above, where he suggests that practical intelligence is more needed to be able to deal with unexpected events in the future than scientific knowledge. Practical intelligence demands training, rather than the establishment of a scholarly discipline on the anticipation and assessment of the future. This view has, of course, a long history in ethics that goes back to Aristotle, who understood morality as being part of the nature of human beings, manifest in the way they act and described in terms of their character, skills, experience of the world around them, and ways to react to it. But in contrast to Aristotle, who talked about the nature of human beings in general, Nordmann speaks about socialized human beings.

In order to contrast between different approaches to practical intelligence, Aristotle is sometimes called a 'first nature naturalist', meaning that he thought (1) that there are norms inherent to the life of all organisms, and (2) that the norms that are encountered in the life of human beings differ only in degree from the norms that can be observed in the lives of different types of animals (Reader 2000).¹ Nordmann, however, talks about the importance of social learning for the training of practical intelligence, and he argues (in the second claim above) that human beings themselves, including the values that they hold dear, change over time. Such a socialized view of human beings is sometimes called 'second nature', in order to contrast it with Aristotle's perspective.² Second nature naturalists argue that values are part of who we are, and are integrated in the ways we act and react to our environment, but they are acquired by means of education and training in a society that is localized in a specific time and place. Hence future people, or even our future selves, differ from us because they receive different socialization.³

So far, I think Nordmann and I agree. But we differ with respect to what we expect anticipations of the future to do. Nordmann is not completely explicit about his expectations, but in his remarks we can see that he criticizes authors who expect anticipations to provide knowledge about the future, to predict what will become reality, or who see the future as an object of design. In contrast to these views in which the future is somehow in our control, he defends the future as an area of surprise, of the unpredictable, as a 'free space'. Imaginations about the future, in his view, should be valued as encompassing ideas about what a better world could be like, which can inspire present actions and offer an evaluative standard to look at our present condition such as descriptions of utopia do. But it seems to me that there are smaller and more practical roles to play for anticipations of the future, which neither seek complete control, nor function as grand inspiring horizons.

To authors who argue that human beings need initiation into a culture and society in order to become sensible actors, the world of action is usually also a world of meanings and reasoning that is culturally transmitted to new generations. In this perspective, the meaning of singular actions depends on their relation to other actions, which will follow them up in time in a social world. This view is particularly well explained by the hermeneutic philosopher Paul Ricoeur in *Soi-même comme un autre* (Ricoeur 1990, chaps. 3 and 4) when he talks about 'basic actions', which are no more than individual movements such as, for example, waving an arm, when they are looked at in isolation from other actions. Such a basic action acquires a different meaning and orientation towards the future in connection to other actions, which follow it in time; such as greeting a friend or voting in favor or against a law in parliament. Depending on

the way in which a basic action relates to sequences of action, or practices, it acquires significance beyond just being a movement.

This understanding of actions helps to see a very elementary function of future orientations. A movement can only qualify as an action, in relation to other actions that follow it in time, which are carried out by the actor him or herself or by other people in a practice. But if future actions convey meaning to present actions, it is important to find out in relation to what sequence of follow-up actions it should be understood, or to what practice it belongs. In the case of new technologies, this sequence is not always clear. As early engagement initiatives around technologies that are being researched or developed have made clear, there is often a lot of reflection and disagreement about the proper relation to future actions among researchers themselves, and with other stakeholders such as future users. A lab-on-a-chip technology developed to diagnose colon cancer by means of an ingestible pill, for example, could be developed in such a way so that it releases a blue dye in case of a positive finding which allows the patient to see the result for him or herself, but it could also be coupled to a radio signaling function so that the pill can send the result to the mobile phone of the clinician (Lucivero 2012). These different possibilities in developing the pill invite thinking about its meaning in different sequences of action, which are carried out by different stakeholders (e.g. patients, clinicians, and others).⁴

This example suggests that future imaginations can have a meaning-giving function, which is far more basic than Nordmann hypothesizes. While he is of course right to suggest that envisioned alternative worlds can sketch possibilities for political or societal change, future imaginations also do something far smaller and more simple: they help to give meaning to present research and development actions, based on imaginations of the actions that could follow them. Imagining those future actions does not make any claim as to whether these envisioned future actions will actually take place, and neither do they imply knowledge about the future, or pertain to designing that future. Imagining the future is more like an experiment that helps to understand the meaning of the instrument that researchers envision to make, as well as the significance of some of their research actions that contribute to creating it.

The reason to engage in future imaginations is probably best understood with help of a geographic metaphor: they provide 'orientation' in exploring the meaning of several research actions on the basis of possible follow-up actions, and practices. Without understanding of the meaning of these activities in action, we would be disoriented, as if without a sense of left, right, up or down (Taylor 1992). Future imaginations allow to develop a sense of direction that is useful to steer present action. Such an imagination has a very concrete and practical relevance: It allows researchers to explore meanings of what they are making, and the significance it may have for stakeholders. Of course, none of these follow-up actions that are imagined may materialize, but predicting is not the point. The reason to engage in such imaginations is to inspire thoughts about what researchers would want their technology to be, and to throw a different light on the significance of specific research actions, such as the development of a dye or a radio signaling function in connection to the ingestible pill.

This simple and straight-forward view of what a future imagination can do is nothing new. All of us engage in such imaginations prior to making choices that will have uncertain consequences, such as moving to another country, starting a new job, engaging in a love affair, having a child, etc. In all of these choices the actor does not possess knowledge about what to expect, but she may engage in all kinds of activities to get at least a clearer picture of what it might mean to her life such as talking to other people who made such choices before, hearing about their experiences, and imagining what possibilities would open up if she would choose and what such a choice allows her to do or to be. Even though such activities (aimed at precedents as well as the future) do not produce full control, nor help her to 'design' her future, they do help her to come to grips with the meaning of this choice to her, as well as how she values it.

Likewise, anticipations of the future in early engagement activities can play a valuable role in decision making about technologies that are being researched or developed. Those anticipations are meaning-giving activities, and their function is to prevent choices being taken blindly, or on the basis of too narrow fantasies of future actions which focus on only on a sub-selection of possible follow-up actions and ignore significant groups of stakeholders.

Notes

1. Examples of more contemporary first nature naturalists are Philippa Foot in *Natural Goodness* (2001), and Alasdair MacIntyre in *Dependent Rational Animals* (1999).
2. John McDowell characterizes his own work as a naturalism of second nature in ‘Two sorts of naturalism’, which is included in his collection of essays *Mind, Value and Reality* (1998). Sabina Lovibond is another example of a second nature naturalist. In *Ethical Formation*, she states that it is part of the first nature of human beings to undergo an initiation in a culture and acquire a second nature (Lovibond 2002, 25).
3. As David Guston remarked in a personal conversation: just like our future selves differ from us, our past self is also different. A study of the past will therefore offer limited guidance for future action.
4. Of course many other examples can be given of situations in which relations to different future activities provide a different way to look at present activities and the technologies that they give rise to. See, for example, Krabbenborg (2013), Oerlemans et al. (2013), and van der Burg (2009).

Notes on contributor

Simone van der Burg is a senior researcher and theme leader for Responsible Innovation at IQ healthcare, Radboud University Medical Center. She works as a project leader of various research projects, especially in the field of philosophy/ethics of new medical technologies (genetics, newborn screening). Her current projects are primarily aimed at developing a cooperative and constructive ethics, which will coach researchers in their ethical reflection on the technologies they are developing/using. The objective is to realize an innovation that contributes positively to the quality of life of patients. She is a member of the scientific board of EPET, a member of the ethical and societal aspects committee of Cogem (an advisory institute for the government on genetic modification), and she is an associate editor of the *Journal of Responsible Innovation*.

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