

# Socratic dialogue on responsible innovation – a methodological experiment in empirical ethics

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Early View publication date: 12 December 2022

DOI: <http://dx.doi.org/10.5324/eip.v17i1.4950>



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*This article presents an experiment in using Socratic dialogue as a methodological approach to Responsible Research and Innovation (RRI) in an interdisciplinary life sciences research project. The approach seeks to avoid imposing a set of predetermined substantive norms by engaging the researchers in knowledge-seeking group discussions. We adapted Svend Brinkmann's method of epistemic interviewing, in order to facilitate reflection on normative issues concerning responsibility in research and innovation in two research group sessions. Two elements characterize this approach, relating it to empirical ethics methodologies: (1) the aim is not to map and analyse opinions, but to develop knowledge based on the dialogue; and (2) the facilitators of the discussion are also active participants in the dialogue rather than mere "spectators". Through a description of the approach and discussion of some key challenges, we show the method's potential as a supplement to the catalogue of RRI approaches and argue that it serves a dual purpose of contributing to knowledge production and reflexivity.*

**Keywords:** Epistemic interviewing, bioethics, responsibility, reflexivity

## Introduction

Responsible Research and Innovation (RRI), understood as “an approach that anticipates and assesses potential implications and societal expectations with regard to research and innovation, with the aim to foster the design of inclusive and sustainable research and innovation” (Horizon 2020 Undated), has been a central element in recent European research policy. RRI usually includes a wide range of actors in the whole research and innovation trajectory to ensure that the research process and outcome is in line with societal “values, needs and expectations” (Horizon 2020 Undated). In order to achieve this, research should happen in close dialogue with relevant stakeholders, political authorities as well as the general public. Researchers should integrate such dialogue on values and expectations in their own research, recognizing RRI as a “techno-moral regime” (Felt 2017: 66) that

is “open-ended and process-oriented” (Felt 2017: 66) institutional work at the intersection of science and society.

RRI focuses on public values and goals, rather than on values and goals internal to research groups or the wider research community. Taking responsibility implies deciding on how to implement these goals and values in the research trajectory. This places new demands on researchers. How do they respond to the inclusion of the “extended peer community” (Funtowicz and Ravetz 1993) typical of science in the post-normal age? How do they respond to the “practical, societal and policy-related concerns” (Gibbons and others 1994: 33) embedded in the quality control in “Mode 2 science”? How do they engage in the reflexive work identified by Felt (2017: 59) as descriptive of one narrative of contemporary research? Given that the aim is active anticipation of possible research trajectories and future societal and environmental implications, it is essential to take the reflexive activity of the research group seriously.

In this article we describe a methodology developed for conducting interviews as one approach to enhance reflexivity regarding the values and aims of a research project within bioeconomy. We utilized Svend Brinkmann’s method of epistemic interviewing through Socratic dialogue (Brinkmann 2007), in order to facilitate reflection on normative issues concerning responsibility in research and innovation. There are two important elements to note in this approach: (1) the aim is to seek knowledge, not to map and analyse opinions; and (2) the facilitators of the discussion are also participants in the dialogue rather than mere “spectators” (Skjervheim 1996). This approach should be understood as a philosophical inquiry that engages non-philosophers. In this respect, the justification for the Socratic dialogue approach is to increase the context-sensitivity of the philosophical study, as is the stated aim of a leading approach to empirical ethics (Musschenga 2005). Thus, we approached the task of facilitating the RRI-sessions from a philosophical starting point, by engaging knowledgeable actors and stakeholders in a discussion of key concepts within their own areas of competence. In so doing, we aimed to better understand the meaning and significance of key concepts of the research project within the current European socio-technical landscape.

Introducing the Socratic dialogue as an alternative to other methods does not imply a claim that social science-based approaches to RRI are restricted to mapping and analysing researchers’ opinions, with the facilitators merely observing discussions without participating themselves. A wide range of methodological approaches exist for engaging researchers in reflecting on issues concerning the societal and environmental relevance of their research, and including self-reflection on the role of the facilitator. Our contribution here is primarily in the framing of the method as an empirical ethics approach, that is, as a particular philosophical engagement with what is usually regarded as empirical methodology aiming at knowledge while furthering reflexivity.

This article presents the methodological approach we applied at two dialogue sessions within a transdisciplinary research project in the field of bioeconomy. The project was granted funding by the Research Council of Norway (RCN), based on a call that required industry collaboration and an RRI-component. In the following, we will describe how we employed the method of epistemic interviewing as a tool for collective normative reflection on the topics of innovation and researchers’ responsibilities and discuss some key challenges facing this approach. Our main

claim is that the approach can facilitate reflexivity that produces valuable insights about responsibility in research and innovation.

The main outcomes of the experiment were twofold and relate to the Socratic methodology being an antagonistic, or “unfriendly”, way of operationalizing reflexivity. First, the methodology was helpful in balancing the power relation between the interviewer and the interviewees. This is because all of the interviewees continually have the opportunity to challenge the interviewer and their assumptions. However, the methodology was not able to fully ameliorate power discrepancies within the group itself, as less experienced or lower ranking members of the group might not feel confident to speak out against views expressed by their superiors.

Second, the methodology fostered exploratory dialogues within the group, in which differing perspectives and viewpoints were played out against each other in real-time. On a number of occasions, this led individuals and the group as a whole to adapt and change their views. The fact that this happened in a collective discussion indicates that the Socratic methodology has promising potential to engage researchers in collective processes of societal and ethical reflections in which they can hold each other accountable. Therefore, the contribution of the Socratic methodology to RRI and empirical ethics is a way to truly make reflexivity a public matter (Stilgoe, Owen and Macnaghten 2013: 1571), in that views are presented and discussed with the “public” of the group present and engaged.

Hence, our methodology can be classified as a dialogical process approach to empirical ethics,

[...] based around the formation of a dialogue between stakeholders and the attempt to reach a shared understanding, in which the analysis, and reaching of a conclusion, is undertaken by the researcher and participants together. (Davies, Ives and Dunn 2015: 4)

We argue that this approach, when oriented towards knowledge of the subject matter, is suited for RRI as understood according to an integration paradigm. Collaboration between science and society is viewed as necessary, and a workable process of collaboration is essential for a robust research result (Glerup and Horst 2014).

We will first discuss the theoretical basis for the Socratic approach to RRI and epistemic interviewing as a form of empirical ethics (1), with a subsequent presentation of the methodological considerations (2). This is followed by a description of the dialogue sessions (3) with an analysis of how the Socratic approach can contribute to normative conclusions while enhancing reflexivity among the researchers (4).

## **Theoretical framework**

### ***Responsible Research and Innovation***

According to Bensaude-Vincent (2014), RRI belongs to a group of buzzwords shaping the techno-scientific arena, characterized by being context-dependent, value-laden carriers of soft power. However, taking into account that the role of RRI is less prominent in the new EU framework programme for research and innovation, Horizon Europe, compared to Horizon 2020, one may suspect that it has already done its job, being integrated into innovation and policy framework concepts such as “Missions”, “Open Science” and “Partnership”. On the other hand,

RRI appears as a concept still under development, and central proponents argue that it has a role to play as a site for debate, *praxis* and politics (Owen, von Schomberg and Macnaghten 2021).

At least four definitions are currently in use (Schuijff and Dijkstra 2020), and one of these has guided the RRI activities that form the basis for this article: “Responsible innovation means taking care of the future through collective stewardship of science and innovation in the present” (Stilgoe, Owen and Macnaghten 2013: 1570). This approach is connected to a framework consisting of four “dimensions” of RRI: reflexivity, anticipation, inclusion and responsiveness. The dimension of reflexivity is the key to our discussion as a collective reflection upon commitments and assumptions that are of relevance for a particular research project:

Reflexivity, at the level of institutional practice, means holding a mirror up to one’s own activities, commitments and assumptions, being aware of the limits of knowledge and being mindful that a particular framing of an issue may not be universally held. (Stilgoe, Owen and Macnaghten 2013: 1570)

In this project, we have utilized a product-oriented approach, where “the direction of research is determined on social grounds such as practical urgency or societal desirability” (Carrier and Gartzlaff 2020: 150). The research, which will be described in more detail below, is conducted within a field that has wide political and public support, namely a turn from applying renewable resources in energy-production and industry to utilizing waste materials from forestry. As this goal is not publicly contested, the essential RRI question is how to realize the goal in the research process through reflexivity and responsiveness. It is important in this context that the researchers considered the “innovation system” and the research policy field as their main societal field of collaboration, since the overarching goal of their research field had general public support. This fits well with the science-for-society approach.

Stilgoe and colleagues agree with Brian Wynne that “institutional reflexivity” is needed (Wynne 1993; Stilgoe Owen and Macnaghten 2013: 1571). They describe reflexivity as what Schuurbiens (2011) has named “second-order reflective learning”, meaning that “the value systems and theories that shape science, innovation and their governance are themselves scrutinised” (Stilgoe, Owen and Macnaghten 2013; 1571; see also Wynne 1993: 324). The notions of reflexivity presented by Wynne and Stilgoe and colleagues generally assume scientists and the public to be the relevant actors, emphasizing the need for enhanced reflexivity among researchers. This can be taken as an implicit message of deficient self-reflexivity in the scientific research community, a common diagnosis in the fields of science and technology studies and RRI research (Wynne 1995: 385-387; Glerup and Horst 2014: 38). Recent research is nuanced in this matter, however, often presenting scientists as respecting the limits of their knowledge and the need for societal dialogue in order to achieve knowledge of value to society and in itself, and hence, a willingness to integrate RRI in their research (Davies and Horst 2015; Schikowitz 2020; Carrier and Gartzlaff 2010). It is perhaps reasonable for researchers and others to understand the demand for RRI and the interventions of facilitators as carrying an implicit message of deficiency, expressed in a need “to stimulate researchers’ capacity to reflect on the social and ethical aspects of their work” (Felt, Fochler and Sigl 2018: 205). This may be fair enough, if there is an

accompanying recognition of the need for reflexivity among those who do research on RRI.

A literature review has identified three types of RRI practices geared towards stimulating reflection: “practices that took place before the research process began, and practices which stimulated reflection during ongoing research processes. A specific form of the latter are reflection resources that can guide researchers in their reflection” (Schuijff & Dijkstra 2020: 563–564). One important approach to stimulating reflection during ongoing research has been that of midstream modulation with an embedded humanist (Schuijff & Dijkstra 2020: 564). Midstream modulation has been based on formally semi-structured interviews with the use of a decision protocol which makes it possible to track changes in reflexive awareness over time (Fisher & Mahajan 2006; Schuurbiens 2011; Flipse, van der Sanden and Osseweijer 2013). The Socratic methodology is related to the midstream modulation approach, taking as its starting point the participation of embedded humanists/social scientists with the aim of increasing researchers’ awareness of their modulators and decisions (Fisher & Mahajan 2006), and helps them consider “the social sides of their work” (Flipse, van der Sanden and Osseweijer 2013: 1144).

The Socratic methodology differs from traditional midstream modulation in three ways. The first difference concerns time. The Socratic methodology starts from unstructured group interviews, in which the topics discussed should ideally be determined by the discussion itself, and not by a preconceived protocol. This means that the Socratic methodology eschews the registering of views in favour of a commitment to allow the group to partake in a public, and often disorderly, process of reflexivity in real time.

The second difference is related to the first and concerns the Socratic methodology’s reliance on a certain degree of antagonism. By largely eschewing the formality of the structured or semi-structured interview, group discussions should ideally proceed by participants challenging each other’s views, assumptions and arguments, even those of the facilitators or interviewers.

The third difference is that in the Socratic dialogue, the aim of the RRI exercise is not reflexivity as such, but reflexivity as an integrated part of knowledge production. There will always be a genuinely interesting answer to a substantial question in this epistemic interview approach, which may make a difference for the reflexivity process.

In the present project we have sought to avoid imposing a set of predetermined substantive norms (Schuurbiens 2011). Researchers as well as other stakeholders often have preconceived ideas concerning the central notions of RRI, research policy and the good of society. The aim of our methodological experiment has been to find a way to bring these out in a dialogue that contributes to refining and adjusting these notions. To avoid one-sidedness, we employed an approach that also brings the facilitators’ preconceived notions into play. The choice of this approach was based on a recognition that if there were shortcomings in reflexivity, they might just as likely be located in the RRI facilitators as in the core group of researchers.

### ***Spectator and participant***

In order to approximate an ideal of non-domination in interaction between all participants (the RRI facilitators, researchers and external partners), we chose an

approach where we could engage everyone as equals. Our point of departure was Norwegian philosopher Hans Skjervheim's distinction between "participant" and "spectator" (Skjervheim, 1996). Being a participant means allowing oneself to become engaged in the problem that the other is talking about. In a discursive situation, a participant enters into a relationship consisting of three parts, "*the other, myself* and the *subject matter*, such that we share the subject matter with each other"<sup>1</sup> (Skjervheim 1996: 71–72).

A spectator does not engage in the subject matter and merely acknowledges that the other makes the claim that they make. "We then have two two-part relationships, one nested in the other like Chinese boxes: *Me* in relation to my *subject matter*, the fact, and my subject matter, which is *the other* in relation to their *subject matter*"<sup>2</sup> (Skjervheim 1996: 72). Inevitably, the spectator takes a superior role towards the other. As participants, however, we engage in a process of reciprocal understanding. As different subjects talking and reasoning about a subject matter, we take part in an intersubjective understanding of ourselves, each other and the world. While the spectator subjugates the other and puts them under scrutiny, the participant joins the other in an effort to understand something about a shared subject matter.

Building on Skjervheim's work, this study presents an attempt to facilitate and engage in RRI discussions, not as spectators registering the opinions of the researchers and collaborators in the project but as interested participants, collaborating in a search for the best account of the subject matter. Since the RRI activity is funded by the RCN as an integrated part of the research project, the facilitators are in a similar situation to the other researchers when it comes to the influence of RRI on our activity. Our role as RRI facilitators necessarily makes us spectators, in the sense that we ask the initial questions, moderate the discussions, and analyse the dialogue results by relating them to a more general, theoretical debate. Still, we have aimed to also participate in the collective reflection on the project and the research and innovation policies that frame this project.

### ***Epistemic interviewing as empirical ethics***

The shift from spectator to participant is described in Brinkmann's justification for the epistemic, or Socratic, interview approach as a way to gain knowledge:

To put my idea in simple words: By probing their respondents' experiences and opinions (the *doxa*), interview researchers are often engaged in what seems like a time-consuming kind of opinion polling for which quantitative instruments such as questionnaires often appear to be much more efficient. If we should really take advantage of the knowledge-producing potentials inherent in human conversations, such as research interviews, ought we not to frame the interview situation differently? Perhaps we should frame it with inspiration from Socrates' dialogues, whose purpose was to move the conversation partners from *doxa* to *episteme* (i.e., from a state of being simply *opinionated* to being capable of *questioning* and *justifying* what they believe is the case). (Brinkmann 2007: 1117)

Our version of this approach answers the philosophical challenge of how to integrate the spectator and participant roles by engaging the whole research group in self-reflexive dialogue. This relates to a philosophical interest in *episteme*, here understood as knowledge that is justified through argumentative dialogue. What

makes a point of view philosophically interesting is not just its substantive content, but also how it is being questioned, challenged, justified and, ultimately, accepted or rejected. Following Brinkmann, the aim of discussions is not certainty, given that there is an intrinsic value in the willingness to question and challenge each other's opinions and to justifying one's views in an open-ended process.

Empirical ethics has primarily been an issue of concern in medical ethics, with an interest in integrating empirical data with theoretical reflection based in moral theory (Molewijk, Stiggelbout, Otten, Dupuis and Kievit 2004). In a sense, this is describing a movement in the opposite direction of Brinkmann's regarding normative arguments. In empirical ethics, the question is how social science data may inform normative questions, whereas in epistemic interviewing, the question is how to reinvent social science data gathering for the pursuit of knowledge, including normative issues. In their review of empirical bioethics research, Davies and colleagues place different methods on a continuum:

On one pole we find Dialogical approaches, which are based around the formation of a dialogue between stakeholders and the attempt to reach a shared understanding, in which the analysis, and reaching of a conclusion, is undertaken by the researcher and participants together. [...] On the other pole we find Consultative approaches, which tend to utilise an external 'thinker' who gathers data and analyses it independently of the data collection process, and then develops normative conclusions. (Davies, Ives and Dunn 2015: 4-7)

Our Socratic dialogue is closest to the Dialogical approach. However, the authors describe consensus as a central aim in Dialogical approaches, whereas we do not hold consensus to be a primary goal but a regulative idea guiding the inquiry. In our version of epistemic interviewing, theoretical soundness is essential, and trusting the "unforced force of the better argument" (Habermas 1997: 47), we aim to develop criticisable arguments derived from the dialogue sessions that can be tested through publication in the academic literature.

Epistemic interviewing in a group is not empirical data integrated with normative reflection. The empirical work *is* the normative reflection. It is questionable whether it is appropriate to call the transcriptions from the dialogue sessions "empirical data" at all. This data is quite different from the opinions and arguments gathered in traditional social science research as described by Brinkmann. Although our methodology constitutes a form of empirical engagement, it is closer to the way philosophers use literary texts and public documents than to the gathering of empirical data pursued by social scientists. The participants take part in the philosophical work together with the facilitators, bridging the gap between the empirical and the systematic normative analysis from the outset.

## **Project and methodological approach**

### ***RRI in a bioeconomy project***

The four-year (2017–2022) research project OXYMOD is funded by the RCN BIOTEK2021 Programme. Both RRI and industry partnership were mandatory elements in the call, which was directed at innovation-oriented research. The project takes a transdisciplinary approach that will "define, develop and

demonstrate applicability of new enzyme systems for the efficient biocatalytic conversion of lignocellulose from abundant Norwegian biomass into valuable products like sugars and aromatic building blocks”.<sup>3</sup> The project proposal describes the high industrial potential of this research, including the possible contribution to production of biofuels on waste materials from forestry, which has been high on the agenda in political debates concerning innovation for sustainability. The researchers are employees at public universities, research institutes and one industry partner. Their fields include life sciences, information technology, computational science and philosophy. In addition, the project collaborates with external bioeconomy industry partners and university technology transfer offices (TTOs).

RRI was an integral part of the project and was facilitated by two philosophy-trained ethicists. The OXYMOD project group has had regular group meetings, mostly dedicated to sharing updates on the progress of the different work packages. Once a year, one of the meetings included the external partners from industry and TTO. RRI has been on the agenda in all research group meetings and has consisted in a combination of 1) discussions on how to understand the RRI framework adapted for the project and 2) presentation of OXYMOD-relevant parts of one of the ethicists’ ongoing PhD research project. This means that RRI has been an integrated part of the project work, building a bridge between the highly detailed and technical enzyme research and the overarching long-term societal goals of the project description. The RRI project presentations prepared the research group for the discussions in the dedicated RRI sessions, focussing in particular on OXYMOD as a “science-for-society” project.

### ***Socratic group dialogue, RRI and empirical ethics***

RRI is a transdisciplinary endeavour and a field in development. We have used an experimental methodological approach that is distinctively epistemic, wherein participants are engaged in a process of reflection while taking part in epistemic dialogue, in line with the reflexivity dimension of RRI. This methodology is appropriate in the present case, because the aim of RRI is not first and foremost to record researchers’ viewpoints, but to better understand how to carry out research and innovation in a responsible manner. According to Brinkmann and Kvale, standard methods of interviewing hide asymmetrical power relations and can easily become an instrumental and manipulative one-way dialogue (Brinkmann and Kvale 2005). Among the alternatives they suggest is the Platonic (later called Socratic) dialogue, which “would entail a mutuality where both parts pose questions and give answers with a reciprocal critique of what the other says” (Brinkmann and Kvale 2005: 171).

In order to achieve this kind of reciprocal dialogue where the facilitators are participants on equal footing with the other participants, the goal of the dialogue should not be enhanced reflexivity or “reflexive work” (Felt 2017: 57) for its own sake. RRI should be an “integral part of knowledge creation” (Felt 2017: 64), which in an academic setting means that it should be directed at a relevant audience. Knowledge creation in research is not merely for internal use but is directed at other researchers and society.

The intention of our methodology was not to discover the opinions of the dialogue partners, but to build a basis for an argument that could contribute to academic discussions, because we assume that researchers have something to



contribute in these areas. Thus, they are not involved as experts, but as stakeholders with practice-based knowledge of the questions raised in the discussions. There is no reason to assume that their opinions would be original or innovative, although that could also be the case. We did, however, expect that the researchers would have perspectives and arguments that could enlighten the academic and public debates within these areas, just like one would assume when interviewing lay people with relevant practical knowledge.

Our approach requires that the participants together reflect on the presuppositions of their own research in bioeconomy as well as on the RRI partners' research on RRI and innovation. Enhanced reflexivity should be a side-effect rather than the aim of the work for all participants, including the participating facilitators. Since the RRI facilitators did not approach their interlocutors as disinterested spectators, but as participants, the researchers could raise their own questions, challenge the facilitators' arguments, as they would in a normal truth-directed discussion. By challenging the RRI facilitators, the researchers also challenged certain assumptions in RRI as participants in an ongoing RRI-project. These kinds of questionings are vitally important in the reflexive process, as they point to pressing issues and urge justification.

By participating in an epistemic discussion, the group was able to reflect on the concepts of "responsibility" and "innovation" as such, the political framing of publicly funded innovation-oriented research, and how the concepts and framings relate to the everyday work of the project participants.

We call this a methodological approach rather than a method, as most methods require some form of representativity and replicability that we do not aim for. As the goal of the dialogue sessions was to develop arguments, not register opinions, the validity of the results is tested in the subsequent contribution to the public debate. This is done through questions like "Do the arguments represent interesting contributions to the debate", "Do they open novel ways to think about the issues discussed?" and "Are they well founded in the sense that they withstand counterarguments?" It is reasonable to assume that arguments are representative in the sense that a different interdisciplinary group of researchers within a similar research area would share the opinions and would present overlapping reasons for them, although that would not affect the validity of the arguments. As Brinkmann (2007: 1134) states: "Opinions are debated, tried, tested, and challenged in an open conversation, where the validity of the respondent's statements does not depend on how he or she 'really feels' but rather on public and intersubjective criteria – perhaps even ethical ones."

The concrete methodological approach contained the following elements: 1) All participants signed a consent form ensuring de-identification in print. 2) A list of questions guiding the discussion was presented at the start of each session. Unlike traditional semi-structured interviews, the participants were invited to raise their own questions within this general frame. 3) We as facilitating participants did challenge the statements and arguments of the other participants, asking follow-up questions for clarification and presenting counterarguments challenging their claims. We also invited the participants to do the same towards us, which some of them did. 4) The main points of the discussions were presented in subsequent research group meetings and elaborated on. These discussions were not recorded but served as informal input to the analysis. Since the goal of the sessions was to develop the argumentative potential in the dialogue sessions, the transcribed

discussions were not treated as empirical data, but as texts aiming for knowledge. That is, we read them looking for themes, arguments and viewpoints like we do when we engage with any philosophical text. There is a long tradition for drawing on non-academic written material in philosophy, from Greek tragedies, poetry and novels (Nussbaum 1990; Hämäläinen 2009) to legal and public documents. One of the strategies employed in empirical bioethics is seeing interviews and focus groups as “‘encounters with experience’ and using those encounters to inform one’s philosophy” (Ives 2008: 2). Thus, the novelty in our approach is not that we use non-academic sources for arguments directed at academic discussions, but that we have adapted the theoretical framework of Brinkmann to group discussions within the field of RRI. The basis for selecting arguments from the sessions was our own knowledge of the ongoing debate on these issues in the public sphere and in academic literature. Someone else reading the same transcriptions may find other lines of argument they would develop further. This places our approach in the group of empirical ethics approaches combining the Dialogical and the Consultative (Davies and others 2015).

## **The dialogue sessions**

### ***Organization, groups and topics***

The discussions that form the backbone of this article were conducted at two of the OXYMOD group meetings. At each of the occasions 1.5 hours were dedicated to an RRI discussion facilitated by the ethicists. The facilitators started each session by presenting the epistemic method, as well as some themes that could form the basis for the discussion. The discussions were audio recorded and subsequently transcribed. Based on these transcriptions, some overarching themes, arguments and viewpoints were identified and presented to the group at later meetings. In this way the discussions were kept open-ended, and the group had the opportunity to further reflect on their views and arguments at different points in time. The results presented in this article are tentative conclusions in this ongoing process of reflection.

The first session included 12 members from the core research group, and the discussions centred on what responsibility and innovation should entail in light of the RRI framework embedded in current research policy in Norway and Europe. The second session included industry and TTO partners, as well as one RCN representative, in total 18 people. This second session covered the same general issues but was in large part focussed on the interaction between research and industry, and on the governance of innovation-oriented research. The topics were derived from the OXYMOD project description and from the funder’s RRI framework (RCN Undated).

### ***Dialogue and power***

Brinkmann and Kvale (2005) claim that their dialogue-based approach is better than standard interviews for exposing and handling power in the interview situation. There is always a tension between the normative ideals inherent in dialogues and the realities of how power relations affect the outcome of rational deliberative practices. Habermas has been regarded as a contemporary heir to Plato, sharing a philosophical ideal of a dominance-free dialogue, countered by a tradition from Plato’s opponents to Foucault that point to the ubiquity of power

(Allen 2009). One way to mitigate this tension is by accepting the social situatedness of particular dialogues, taking into account the facts of hierarchies and power (Allen 2009). This means accepting that an argument will always be made from a particular position in any group's power structure, and the fate of the argument in a discussion will in part be determined by the status of the speaker. We recognize that there is a risk that some viewpoints will not be voiced in a group discussion. Perhaps these viewpoints would stand a better chance to be expressed in other approaches, directed at empowering researchers with different experiences and hierarchical positions to engage in collective discussions (Felt and others 2018). We hold, however, that the power of the speaker will not in itself affect the validity of the argument if it is presented to an audience beyond the research group in question, as we intended with our application of Brinkmann's methodological framework. The power of the speaker will, however, affect the internal RRI goal of enhanced reflexivity, as some voices may be silenced, meaning that important perspectives are not brought into the discussion. Socratic dialogues are in a certain sense "unfriendly" and foster an environment where claims are challenged, questioned, defended and justified in a public forum. This agonistic aspect holds a potential to reveal and bring into discussion the power structures that exist within the RRI-framework itself. Hence, the Socratic methodology is not suited to uncover power asymmetries within a group, but it can be useful to articulate the power structures that the group as a whole is embedded in.

Brinkmann is aware that epistemic interviews, where respondents can be called to justify their statements, are ethically challenging. Still, he holds that as long as the respondents are well-informed, this approach has "the potential for at least as great a transparency of its power relations" compared to traditional opinion-oriented methods (Brinkmann 2007: 1134). One could even claim that unlike standard social scientific interviews, the Socratic approach allows for true dialogue: "... a joint endeavor where egalitarian partners, through conversation, search for true understanding and knowledge" (Kvale 2006: 483).

The equality between facilitators and other participants was clearly demonstrated at the outset of the group discussion, where members of the core research group argued that the RRI framing carried an implicit presupposition that the researchers were not thinking about being responsible. Furthermore, it was claimed that a sense of responsibility is "many times the deepest motivation for scientists", and that they "want to make something that can be for society and help the society also" (r1)<sup>4</sup>. The assumptions of the RRI activity were being challenged at their core.

The idea of participatory equality was also challenged: "You are here to research on us" (r2). The facilitators disagreed, pointing to the ambition of being participants rather than spectators and that the aim was a joint effort to understand how to do responsible research in a publicly funded, collaborative and innovation-oriented research project. In the ensuing discussion, the participants continued to challenge the facilitators on the aims of the activity, concluding that "RRI comes from the EU; the reason why it is there is to strengthen political control with research" (r3). This was countered in a discussion of the substantial issues of scientific innovations that had disruptive potential and therefore did raise substantial issues of responsibility. In short, the challenges went both ways, indicating that using Socratic dialogue with room for confrontations and reciprocal critique is a way to handle the asymmetry of power in qualitative interviews.

However, our methodology of Socratic dialogue does not overcome the issues of power hierarchies in research groups. To mitigate this hierarchical asymmetry of power, the dialogue could be supplemented with other approaches, such as breakout sessions in smaller groups, or even separate dialogues with junior researchers.

### ***Socratic dialogue with a dual purpose***

Using Socratic dialogue as an approach to RRI has a dual purpose: the first is to seek interdisciplinary dialogue aimed at knowledge; the other is to aim towards reflexivity on how to conduct responsible research and innovation in this particular research project. One crucial knowledge issue concerned the emerging mission-oriented approach to innovation in the EU framework programme for research and innovation: How is research affected by this and related kinds of political governance and how is scientific quality affected? One example of this kind of political control is the requirement of industry collaboration in the research project. The dialogue on the potential of such collaborations illustrates the knowledge potential of the Socratic dialogue approach to RRI.

The goal of the collaboration between public research institutions and privately owned industry players is not that each collaborative project should lead to an innovation. One of the external industry partners stated that they participated in projects of this kind, not to influence the research according to their interests, but for “surveillance on what’s going on” (i1). The industry partner added that in collaborative projects, their main motivation to be involved is not innovation in the short-term. Most researchers “are not in a position to develop a very good business case”, since they neither have the time nor the required focus (i1). The chasm between university research and viable industry production is too wide, both in terms of the development needed and the difference in processes between the two sectors. “So I think academia create, and has to create a knowledge shell in which we operate, and where we know the limits, and where we know the possibilities and impossibilities. [...] from this massive data, we kind of figure out what could be done, and you know, overlaid with our limitations and processes” (i2).

Similarly, the researchers wanted to have industry partners involved in the research as a kind of “sanity check”, and for insight into how industry players are thinking in the long term. Hence, collaboration does not generate innovative products directly from the research, despite this being the impression in calls and project descriptions. Rather, collaboration helps develop a shared language and knowledge of what happens outside their own areas, both for research and for industry. If this is correct, opportunities for exchange of knowledge are crucial to succeeding in innovation: “[W]e are talking about [placing] industry into a project, but [...] sometimes it is also very valuable for us to come out and see industry” (r1). It is a matter of seeing and understanding the process, to “be in a real setting” (r1). One of the industry partners added that “the more different ways [there are] to interact in different collaborations, academia and industry, the more you get to know each other and then something new will fall out” (i1). We understand this to mean that valuable innovations will result from collaborations between research and industry, but there is no particular way to get there except for long-term interactions where both parties seek to do what they are best at. This insight should affect how research calls are formulated for projects with industry collaboration, in order to achieve a more adequate funding structure for innovation-oriented research. The dialogue provides the basis for an argument that can be worked out

and presented to the contemporary academic and political debates in mission-oriented research and innovation.

How could this discussion contribute to reflexivity on the responsibilities of researchers in bioeconomy? The researchers and project partners had to spend time explaining and arguing their positions to each other, indicating that there were non-trivial points to be made. The discussion appeared to have an exploratory character, where both parties adjusted their initial statements. It seemed as though the resulting obstacles to crossing the boundaries between basic research and industry-oriented research appeared different from the two perspectives in the initial descriptions. During the discussions, the participants appeared to converge on a shared account, although it is unclear whether this was primarily a convergence towards a common language or an expressed agreement on the ideal form of collaboration. Similar adjustments in positions are detectable in the other topics discussed. Whether such adjustment should be taken as indications of enhanced reflexivity may be debated, but it suggests the potential of this approach.

## Conclusion

Recent years have seen a rapidly growing literature on how to carry out responsible research and innovation. In the OXYMOD research project, RRI has been an integral part of the research group's activities through discussions on the implications of the RRI framework or presentations of PhD research on the field of innovation studies. When discussing how to conduct dedicated RRI sessions in a way that can avoid either the sessions becoming mere add-ons to the scientific core of the project or instrumentalizing the researchers by evaluating their reflexive capacities, we sought an approach where we as RRI facilitators were involved in a common endeavour with the rest of the research group.

Brinkmann's approach to epistemic interviewing, also called Socratic or Platonic dialogue, was adapted to the group dialogue format, where the facilitators could be participants in the discussion. Applying this method to group interviews is suitable for realizing the advantages of the approach, according to Brinkmann: balancing the power of the interviewer and producing knowledge rather than documenting opinions. Participating in a group discussion on equal footing reduces the control of the interviewers or facilitators over the situation, levelling the playing-field. Altering the implicit rules by inviting questions and challenges from all participants further reduced the power imbalance, as was clearly demonstrated in our dialogue sessions. However, the group approach is not able to ameliorate the power imbalances inherent in research group hierarchies. This could be addressed by conducting the Socratic approach in subgroups.

The Socratic methodology we employed is related to the midstream modulation approach to RRI, while allowing antagonistic and disorderly public reflexivity in real time. The experiment we have conducted indicates promising results for this way of approaching RRI. One of the participants said that this approach gave "more bang for the buck" (r3) than previous experiences with RRI. If we assume that insights are won through resistance, we cannot take this as a final confirmation of success for the Socratic dialogue as a way to achieve enhanced reflexivity. Still, tracing the development of the dialogue demonstrated willingness to engage in second-order reflexivity, understood as engaging with the values underlying research, innovation and systems of research governance (Schuurbiens 2011).

Due to the epistemic orientation, the Socratic dialogue is a promising addition to the catalogue of empirical ethics methodologies. It should be classified as a Dialogical approach and is characterized by integrating empirical and normative aspects, as the empirical work is an integrated part of the normative reflection.

This article mainly presents a methodology aimed at knowledge production. The true test of its adequacy is yet to be seen. When the central arguments are developed and integrated in academic papers, we will know more about the potential of the Socratic approach. We hold that researchers have valuable practice-based knowledge that can be translated into contributions to academic or public debate. This means that we are not concerned whether the participants are representative of their group or researchers or worried about the validity of the data generated through the sessions. The validity is tested in the contribution to knowledge when the arguments are developed and presented to a competent audience.

## Acknowledgements

The authors would like to thank the participants at the group dialogue sessions and the OXYMOD research group for their reflections on the outcome of the sessions. We also thank Tsjalling Swierstra for commenting on an earlier draft of this article, and Nora Vaage for suggestions of relevant literature on the methodology.

## Notes

<sup>1</sup>Authors' translation from the original Norwegian.

<sup>2</sup>Authors' translation from the original Norwegian.

<sup>3</sup>From the OXYMOD project page.

<sup>4</sup>The information following the quote indicates the position of the respondent: "r" stands for researcher, "i" stands for industry participant.

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