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## **Methods and Values Revisited: Responsibility and Methodological Orientations in the Social Sciences**

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### **Abstract**

Philosophical debates on science and values increasingly emphasize that methods and concepts are not only shaped by values but also promote them through routine scientific practice. Building on Ratti and Russo's bidirectional model, and on recent discussions of responsibility in science, we examine how methodological orientations function as practices that bear values within the social sciences. Drawing on qualitative data from an online research protocol with Croatian social scientists, we identify three patterned epistemic orientations and analyse how researchers reason about normative dilemmas across vignette scenarios. The findings show that methodological orientations are experienced not as neutral tools but as frameworks intertwined with responsibility, legitimacy, and professional identity. We argue that these orientations have a dual normative role: they are value-expressive, articulating researchers' commitments, and value-generative, reinforcing institutional logics and social consequences beyond individual intention. By grounding the value-promotion thesis in empirical material, the paper proposes that reflexive awareness of both dimensions is a key component of responsible social scientific practice and highlights the epistemic and democratic significance of methodological pluralism.

*Keywords:* Values in science; Scientific responsibility; Methodological orientations; Methodological pluralism; Epistemic cultures; Value promotion; Reflexivity

## 1. Introduction

Over recent decades, debates about values in science have increasingly challenged the idea that scientific inquiry can or should be value-free. This challenge has deep roots in the social sciences: Max Weber's distinction between matters of fact and matters of value initially framed sociology as an enterprise that ought to bracket evaluative commitments (Weber, 1949). Yet subsequent work has demonstrated that such separation is neither possible nor epistemically desirable. Inductive risk arguments show that uncertainty makes value judgments unavoidable in assessments of error and consequences (Rudner, 1953; Douglas, 2009). Feminist epistemology highlights how objectivity is shaped by social location and power relations (Longino, 1990; Harding, 1991). Science and Technology Studies (STS) demonstrates that evidential standards and scientific facts are stabilized within institutional and societal contexts (Latour & Woolgar, 1979; Knorr Cetina, 1999; Jasanoff, 2004). Recent syntheses therefore emphasize that the central question is no longer whether values enter scientific practice, but how they do so and how their presence should be understood within responsible research (Elliott, 2025).

Ratti and Russo (2024) propose a bidirectional model of interaction between science and values that extends this debate. Their account argues that values are not only constraints on scientific reasoning, entering at moments of uncertainty or ethical deliberation, but also products of scientific practice. Concepts and methods, once institutionalized, are not neutral carriers of information: they structure meaning, authorize interventions, and promote particular values through the governance arrangements they support. This value-generative dimension shifts attention from science as merely vulnerable to values to science as a source of normativity. On this view, methodological orientations and conceptual frameworks articulate commitments, but they also shape the normative terrain within which scientific authority operates.

This bidirectional perspective invites closer attention to methodological orientations as key sites where values are both expressed and promoted. Debates in fields such as public health and epidemiology illustrate how methodological traditions embody different visions of epistemic rigor, legitimacy, and responsibility, which can yield divergent views of appropriate action, even when evidence is shared (e.g. Fuller, 2020). Such examples illustrate how methodological orientations carry normative weight that extends beyond technical preferences.

Recent discussions increasingly frame this normative dimension in terms of responsibility. For Kitcher (2011), scientific inquiry is inseparable from democratic responsibility: decisions about research agendas and evidential priorities reflect collective value schemes that determine whose needs are addressed and whose problems remain

invisible. Responsibility in scientific practice thus includes, but is not limited to, epistemic responsibility for reliable knowledge or preventionist responsibility for mitigating harmful error (Douglas, 2009). It also encompasses forward-looking forms of social responsibility, such as anticipating consequences, responding to public needs, and contributing to the legitimacy of scientific institutions.

Empirical philosophy of science has begun to examine how responsibility is distributed and experienced within research settings. Politi (2024) shows that anticipatory responsibility within interdisciplinary biomedical teams is unevenly shared, with senior investigators expected to engage with societal implications while junior researchers remain focused on technical tasks. Popa (2024) further argues that responsibility is relational and collective, embedded in epistemic cultures and institutional arrangements, rather than reducible to individual moral deliberation. According to Popa, methodological and conceptual choices are not normatively neutral; they shape epistemic justice, public trust, and legitimacy. Building on Popa's relational account, we focus on methodological orientations as one particular site where such responsibility is negotiated in everyday research practice. Our aim is not to propose a separate account of responsibility, but to show how responsibility is experienced and enacted through methodological orientations understood as value-bearing practices in the social sciences. This focus extends Popa's insight by examining how responsibility is articulated not only through institutional arrangements but also through the methodological commitments that shape researchers' epistemic cultures.

The social sciences provide an illuminating setting for examining this dynamic. These fields have long been characterized by explicit methodological pluralism and persistent divides between quantitative and qualitative traditions (Kang & Evans, 2020; Milojević et al., 2014). Such divides function not only as technical distinctions but as epistemic cultures, carrying assumptions about valid evidence, appropriate explanation, and legitimate public engagement. Methodological orientations therefore offer a productive lens for studying how values are articulated and stabilized within research communities, and how researchers negotiate responsibility in relation to institutional expectations and public relevance.

This paper contributes to the philosophical debate by grounding the value-promotion thesis in qualitative empirical material. Drawing on data from an online, open-ended research protocol with Croatian social scientists, we examine how researchers understand and negotiate methodological orientations when reflecting on normative dilemmas. Across three empirically derived clusters of epistemic orientations, vignette responses suggest patterned forms of normative reasoning about appropriate action, credibility, and public relevance. Our

analysis shows that methodological orientations are experienced not as neutral tools, but as value-bearing frameworks intertwined with responsibility, legitimacy, and professional identity. We argue that methodological orientations have a dual normative role: they are value-expressive, insofar as they articulate researchers' epistemic and ethical commitments, and they are value-generative, insofar as they reinforce institutional logics and social consequences beyond individual intention. Furthermore, we propose that reflexive awareness of both dimensions is a component of responsible scientific practice, and that methodological pluralism carries not only epistemic but also democratic significance.

## 2. Study design and analytical approach

Practice-oriented and empirical philosophy of science increasingly employs qualitative and ethnographic methods to investigate how epistemic norms, reasoning practices, and values operate in everyday scientific practice (Wagenknecht et al., 2015; Nersessian & MacLeod, 2022). Recent work in empirical philosophy of science has argued that the pursuitworthiness of philosophical inquiry concerns not only the ideas it advances, but also the methods through which it proceeds (Hangel & ChoGlueck, 2023). Qualitative approaches, in particular, have been defended as philosophically legitimate tools for investigating the social and normative dimensions of scientific practice, precisely because they enable analysis of epistemic norms as enacted, negotiated, and stabilized in lived contexts rather than reconstructed in abstraction. Our study builds on this orientation by examining how social scientists articulate and reason through methodological commitments in response to normative dilemmas, treating methodological orientations not as external variables but as constitutive elements of epistemic culture. In doing so, we contribute to a non-idealized understanding of responsibility in science, one grounded in how researchers themselves experience and interpret normative implications of their methodological choices.

This approach aligns with practice-oriented studies that investigate scientific reasoning within distributed, collaborative epistemic settings (Nersessian & MacLeod, 2022). Such work has shown that methodological commitments are embedded in concrete research practices and negotiated within epistemic cultures, rather than being fixed by abstract methodological doctrine. We extend this empirical orientation by shifting the focus toward the normative implications of methodological orientations as articulated by researchers themselves. Rather than reconstructing reasoning from published outputs, we examine how scientists themselves reflect on methodological commitments when confronted with situations that require judgment about legitimacy, responsibility, and institutional consequence.

To situate the philosophical debate in lived scientific practice, we draw on the findings of a recent qualitative study of Croatian social scientists (Brajdić Vuković & Tranfić, 2025). The present study expands on our earlier methodological work on creative qualitative design (Miočić et al., 2020). To explore how social scientists understand and express values in research, institutions and policies, we developed an online open-ended protocol using the LimeSurvey platform. Our approach was informed by traditions of creative qualitative inquiry (Brearley, 2008; Kara, 2015; Mannay, 2016). It aimed to generate situated reflections on epistemic commitments and disciplinary imaginaries among Croatian social scientists. The study design rests on the assumption that epistemological commitments are rarely made explicit; rather, they become visible through the way scholars frame dilemmas, interpret key concepts, and negotiate institutional and societal expectations. Our creative format thus enabled us to capture both explicit statements and the implicit value frameworks underlying academic practice.

The protocol was constructed as a composite instrument that integrated several interpretive components, each intended to elicit reflection from a different angle. Its multimodal structure encouraged participants to articulate latent assumptions, connect personal experience with disciplinary norms, and position themselves with respect to broader epistemic debates. The format had been tested in related projects and shown to be effective in producing rich, context-sensitive accounts.

The instrument contained three elements. First, participants supplied socio-demographic and professional information (discipline, career stage, methodological orientation), which enabled us to relate their responses to methodological preferences and academic identities. Because methodological orientation is central to our analysis, we asked participants two direct questions about methodological orientations: which approaches they use most frequently in their research (quantitative, qualitative, or both equally) and which methodological orientation they personally prefer, those in which they feel most confident, or in their words, “like a fish in water”. By combining these responses, we categorized participants as qualitative, quantitative, or mixed-methodology orientation researchers, thereby identifying both habitual practices and subjective orientations. We use the term methodological orientation to denote broader epistemic commitments concerning what constitutes valid evidence, appropriate explanation, and credible knowledge. While such orientations frequently align with particular methods (e.g. quantitative with surveys, qualitative with semi-structured interviews), they do not coincide with them: researchers may adopt methods associated with one tradition while rejecting the normative assumptions that are often linked to it.

Second, participants were invited to respond to six brief quotations drawn from the philosophy and sociology of science. These excerpts dealt with issues such as neutrality, responsibility, and methodological rigor, and respondents indicated their agreement or disagreement. This element allowed us to trace epistemic alignments and divergences across methodological traditions/orientations.

Third, we employed vignettes, short hypothetical scenarios adapted from established techniques (Finch, 1987), that depicted common professional and ethical dilemmas. By asking respondents to comment on the actions of imagined others, these vignettes provoked reflexive engagement with norms and values while preserving a degree of narrative distance. Each vignette was accompanied by additional normative prompts (e.g., motivations, ethical evaluation), further stimulating interpretive imagination.

Because our study employs vignette-based qualitative responses, the findings should be understood as capturing scientists' normative reasoning, professional self-understanding, and anticipated courses of action, rather than direct observation of behaviour. Vignettes are designed to elicit situated judgment under conditions of uncertainty and are widely used to examine how professionals interpret responsibilities, risks, and decision-making contexts. In this sense, our data illuminate how researchers understand and negotiate methodological choices and their consequences. While such accounts cannot substitute ethnographic observation of practice, they provide insight into the interpretive frameworks through which practice is justified, anticipated, and rendered meaningful.

The study involved 36 participants in an online mixed-method protocol across disciplinary fields (sociology, psychology, economics, political science, and related fields) and career stages (from early-career academics to senior professors and researchers). According to their primary methodological orientation, the group included 18 qualitative, 14 quantitative, and 4 mixed-methodological orientation researchers, with the sample evenly divided by gender (18 women and 18 men). For the purposes of this article, we highlight one central idea, namely that methodological orientations are experienced by scientists as meaningful divisions, closely tied to their sense of good science and legitimate practice. All participant quotations were translated from Croatian by the authors; minor edits were made for clarity.

### 3. Findings

As part of the protocol, participants were asked to respond to six thematic statements reflecting a range of viewpoints on scientific practice and the societal role of science. These statements touched on the following dimensions:

- 1) Transformative science – science as a vehicle of social and political change;
- 2) Disciplinary vs. user-oriented science – tension between academic knowledge-building and user relevance;
- 3) Evaluative subjectivity – questioning the neutrality of scientific evaluation;
- 4) Objectivist orientation – emphasis on objective theory-building and causal testing;
- 5) Anti-positivist stance – rejection of universalist models in favour of social complexity;
- 6) Disciplinary complicity – critical reflection on the role of social science in enabling societal crises, particularly capitalism and environmental degradation.

By examining patterns of agreement, our analysis identified three overarching groups which we named “socially engaged academics”, “evidence-focused practitioners”, and “pragmatic hybrids”. The presence of moderate levels of agreement indicates a continuum of epistemic positions rather than rigid categories. To further enrich these findings, we introduced four vignettes, each illustrating how methodological orientations and normative commitments shape researchers’ imagined roles in ethically and politically sensitive contexts (Table 1). The first vignette features Karmen, a sociologist of organizations and environmental volunteer who encounters suspected corporate environmental wrongdoing. The second presents Igor, a health policy researcher invited to join a health ministry task force on systemic healthcare inequalities. The third vignette introduces Sanja, a psychologist serving on a national panel tasked with revising academic promotion criteria, and the final one concerns Martin, an economist researching inequality and participating in a university council debating tuition hikes. In each case, respondents were asked to describe in their own words what happened next—what the protagonist did, and, in Igor’s scenario, how he experienced participation in the task force. The vignette method provoked reflection on norms, values, and decision-making, while also resonating with respondents’ own lived experiences, which often surfaced in their answers. The analysis of these scenarios reinforced the cluster patterns, showing that epistemic orientations were not only abstract positions, but also enacted in imagined practice.

**Table 1. Vignettes used to elicit normative reasoning and methodological self-understanding**

Vignette Title	Scenario Summary	Analytical Focus
Karmen and the Sick Birds	Karmen, a sociologist and environmental volunteer, observes sick birds near a cargo port and speaks informally with workers. Participants are asked to imagine her next step.	Elicits reasoning about researcher engagement, activism, and the boundaries of scientific responsibility.
Igor and Health System Reform	Igor, a health policy researcher, joins a ministry task force on healthcare inequalities. Participants describe his likely experience and approach.	Investigates how researchers balance personal commitments, disciplinary norms, and institutional responsibilities in decision-making.
Sanja and Gender Bias in Evaluation	Sanja, a psychologist on a national working group, learns that the current evaluation system disadvantages women. Participants describe how she responds.	Probes normative judgments about fairness, institutional reform, and the legitimacy of quantitative evaluation criteria.
Martin and Tuition Fees	Martin, an economist studying inequality, participates in a university council debating a tuition increase. Participants predict what he does before the vote.	Investigates how researchers balance personal commitments, disciplinary norms, and institutional responsibilities in decision-making.

### 3.1. Socially engaged academics (N = 18)

This was the largest and internally most cohesive group, displaying steady agreement across a wide spectrum of normative positions. Although a few members endorsed all six statements, the majority agreed with at least four—especially those affirming science as a vehicle of social change, prioritizing user relevance over disciplinary insularity, questioning the neutrality of evaluation, and stressing the shared responsibility of the social sciences for addressing societal crises. Participants in this group rejected analogies with natural sciences and consistently supported an activist stance. They strongly affirmed that science has a duty to engage with societal crises and viewed evaluation processes as inherently politicized. The group was primarily made up of qualitative researchers (11), but also included several quantitative (5) and mixed-methodological orientation (2) scholars, indicating that epistemic orientation does not align perfectly with methodological preference, though there was a clear tendency toward qualitative approaches.

The following common characteristics were identified as typical for the socially engaged academics across the four vignettes. First, respondents integrate research and social activism by envisioning the former as inseparable from civic or political engagement, as seen in Karmen’s scenario, who is imagined as combining epistemic

inquiry with activist impulse. For example, one respondent envisages designing a study with explicitly activist intentions:

“Karmen mobilized her sociological knowledge in the field of her non-academic interest. As her next step, I imagine her designing a study of the organization of the cargo port within the framework of her interest in environmental protection, that is, combining her scientific competences with her activist engagement.” (Respondent 18)

Second, socially engaged academics highlight structural imbalances and marginalization of certain forms of knowledge, imagining Igor as confronting institutional norms that privilege quantitative, biomedical approaches over qualitative, social science perspectives. Third, their responses are shaped by personal lived experience and a strong sense of collective responsibility, as in Sanja’s scenario, who is imagined by the socially engaged group to draw on personal insight and awareness of broader, gendered social structures. For example, one participant highlights actively questioning the inequality implicit in quantified evaluations by appealing to Sanja’s positionality:

“Sanja uses her position as a woman in science to highlight a specific inequality that arises in the system of higher education and science, in the hope that alternatives will be considered which could lead to systemic changes addressing the roots of these purely quantitative evaluations.” (Respondent 11)

Finally, they see academics as moral actors who should actively oppose unjust policies, exemplified by Martin’s stance of resisting tuition hikes through critical engagement and civic duty. Overall, socially engaged academics, two-thirds of whom were qualitative researchers in our sample, are characterized by a fusion of knowledge production with value-laden ethical and political action, an emphasis on challenging power structures and a commitment to solidarity and public good.

### 3.2. Evidence-focused practitioners (N = 10)

This group largely opposed the idea of science as transformative or oriented toward users, rejected the view that evaluation processes are politicized, and did not support the notion that social sciences share responsibility for societal crises. Their agreement clustered instead around a disciplinary, depersonalized vision of science, stressing objectivity, methodological rigor, and neutrality, while distancing themselves from activist or anti-positivist claims. Most participants agreed with only one or none of the normative statements. The group was

composed primarily of quantitative researchers (7), alongside two qualitative and one mixed-methodological orientations participant. Overall, they favoured a discipline-centred understanding of science, emphasizing standardization and methodological neutrality.

In response to vignettes, several characteristics appeared as typical for evidence-focused practitioners. First, they favoured formal, procedural responses that work within established structures, as with Karmen, who is imagined to escalate concerns through official organizational channels rather than through direct activism. For example, one quantitative researcher briefly responds by choosing an institutional route of action: “She reported the corporation to the competent environmental protection agency” (Respondent 19).

Second, evidence-focused practitioners saw the role of academics as providing specialized knowledge to stakeholders in order to inform decision-making, without activism. For example, Igor is imagined to be doing that by presenting data on healthcare inequalities to the health ministry task force: “Igor will try, within the working group, to present the problem of the impact of social inequalities on treatment outcomes and the provision of healthcare” (Respondent 5), also “He is attempting to convey his scientific and professional knowledge in order to improve the guidelines, taking real situations into account” (Respondent 28).

Importantly, these responses are contrasted with a previously mentioned pattern of persistently negative responses imagining Igor’s participation in the health ministry task force as painful, superficial, and frustrating. As one respondent describes:

“Igor feels marginalized. The other members of the working group, all of whom are medical professionals, show little understanding for the arguments of a social scientist. They do not listen to his arguments and downplay the research he refers to.” (Respondent 16)

This finding is crucial as it highlights the negative experience of social scientists with informing policy and advocacy, underlining unequal valorisation of certain forms of knowledge by institutional authorities. Moreover, 7 out of 9 respondents predicting Igor’s negative experience with the task force are qualitative researchers, which highlights the particular experience of marginalization of researchers within this epistemic culture.

Third, they framed decisions as guided by objective evidence and fair procedures, illustrated by Sanja’s effort to revise promotion criteria on empirical grounds to ensure equal opportunities through the principle of neutrality. Finally, they emphasized presenting data while refraining from direct opposition, exemplified by Martin, who

shares research findings on tuition hikes, but leaves the final decision up to institutional authorities. Overall, evidence-focused practitioners are characterized by trust in institutional processes, a focus on empirical evidence as the basis for action, and a tendency to inform rather than to challenge policies or organizational decisions. Professionalism, objectivity, and neutrality are the key values underlining their sense of responsibility for ensuring merit and fairness in the public and in the educational system.

### 3.3. Pragmatic hybrids (N = 6)

This group displayed a more ambivalent stance, with most participants selectively agreeing with two or three statements. They endorsed methodological rigor and cumulative knowledge, offered conditional support for user relevance and critique of evaluation practices, and were divided on whether social sciences should be held accountable for broader societal crises. The group was composed of qualitative (3), quantitative (2), and mixed-methodological orientations (1) researchers, reflecting a technocratic orientation that remained open to normative considerations. Their vignette responses point to a context-dependent view of values in science, shaped less by firm epistemological commitments than by institutional and political circumstances. They often combined trust in institutional processes with context-sensitive, socially embedded reasoning.

For example, highlighting that scholars would act in accordance with their values and expertise, one quantitative researcher imagines Martin as “agreeing with the tuition change on the condition that tuition fees are subsidized for the poorest 10%” (Respondent 35). However, in Sanja’s scenario, he argues that she should take no action regarding the criteria of professional advancement, highlighting that “women should accept their roles as both scientists and mothers” and insisting on the objectivity of those criteria.

### 3.4. Insights across clusters

By examining patterns of agreement across the six statements, we identified clusters as empirically grounded yet interpretatively flexible ways of understanding how social scientists position themselves both epistemologically and ethically. Importantly, no significant differences were observed across disciplinary fields, suggesting that these orientations are not confined to particular disciplines. Rather than reflecting purely methodological divisions, they appear to express broader normative and institutional alignments that cut across conventional boundaries of method and field.

At the same time, the relationship between methodological orientations and researchers is not one-directional. Methodological orientations are not only adopted because they resonate with researchers' epistemic or normative commitments; they are also shaped, promoted, and stabilized by disciplinary cultures, institutional incentives, and prevailing standards of legitimacy. As orientations become embedded in disciplinary trends, researchers may experience tensions between personal commitments and dominant methodological expectations, and those who do not adhere to prevailing orientations can become marginalized. This reciprocal dynamic clarifies that methodological orientations are formed through an interplay between individual values and institutional structures rather than by one side alone.

Our findings reveal that methodological orientations function as more than technical tools for researchers. While scientists may not always articulate their orientations as 'value-bearing,' their reasoning about responsibility, legitimacy, and appropriate action is systematically patterned by methodological orientation. This suggests that value-promotion operates as a lived dimension of research practice, even when it remains implicit.

Our empirical material further illustrates how methodological orientations place researchers in normative positions that, when enacted, reproduce and reinforce specific value commitments. The vignettes were designed to elicit responses to ethically and politically charged situations, whether to emphasize institutional neutrality, activist engagement, or pragmatic compromise. In doing so, they reveal how methodological orientations channel what scientists perceive as legitimate action, thereby shaping not only the expression of prior commitments but also their institutional reproduction. We use the term 'value-generative' in a modest sense: not to suggest that values are created *ex nihilo*, but that methodological orientations provide infrastructures through which certain values are promoted, stabilized, and institutionally reinforced—often independently of researchers' explicit intentions. The value-generative dimension is distinct from the value-expressive one: researchers may choose methods because they align with prior commitments (expression), but these methods then produce normative consequences that extend beyond what any individual researcher intended or foresaw (generation). Thus, the evidence-focused orientation toward quantitative rigor and international standards not only signals commitments to neutrality and objectivity, but also strengthens institutional logics of evaluation and policy uptake that privilege these values. Similarly, the socially engaged orientation both expresses commitments to inclusivity and critique, and generates solidaristic forms of academic identity and public-facing responsibility. What the vignettes reveal, then, is the stabilization of value configurations through methodological orientations. In this way, our empirical material not only enters into dialogue with philosophical accounts of value in science,

but also grounds and expands upon them, demonstrating how the value-promoting role of methodological orientations is articulated and enacted by scientists themselves. These patterns also resonate with Longino's account of objectivity as a product of critical interaction among diverse perspectives rather than value-neutrality alone. If methodological orientations shape what counts as legitimate evidence, critique, and explanation within a field, then methodological pluralism becomes an important condition for more robust forms of objectivity. In this sense, the value-bearing and value-generative dimensions we identify point to the epistemic significance of plural, structured critical engagement in the social sciences.

#### 4. Methodological Orientations as Value-Bearing: Bridging Philosophical Accounts and Empirical Findings

In this section, we interpret our empirical findings in dialogue with recent philosophical accounts of science-values relations. Specifically, we show how the patterned reasoning observed in our study provides empirical insight into the value-expressive and value-generative dimensions of methodological orientations discussed in recent philosophy of science. Douglas, Longino, and Jasanoff demonstrate how values enter science through inductive risk, standpoint epistemology, and co-production, while Ratti and Russo (2024) argue that methodological orientations and concepts are generative of values, promoting normative commitments through routine use. Our contribution shows how this generativity is experienced and articulated by scientists in everyday research contexts. Drawing on vignette responses, we demonstrate that methodological orientations are understood not merely as technical tools, but as epistemic and ethical orientations that express commitments and stabilize value configurations within the epistemic cultures of the social sciences.

From the perspective of everyday epistemic practice, scientists in our research do not express their methodological orientations as neutral tools; rather, they connect them to legitimacy, responsibility, and appropriate forms of knowledge production. Socially engaged academics emphasized responsiveness to social crises and public relevance; evidence-focused practitioners stressed evidential rigor, comparability, and policy usability; pragmatic hybrids emphasized adaptability and methodological pluralism under institutional constraints. In practice, methodological orientations signal commitments, shape knowledge claims, and orient researchers toward particular forms of institutional legitimacy.

Our findings do not track downstream institutional effects; instead, they capture how researchers anticipate and reason about such effects, thereby illuminating the experiential dimension of value generation. Vignette responses reveal that scientists do perceive methodological orientations as consequential for legitimacy,

authority, and societal impact. This anticipatory reasoning suggests at least minimal tacit awareness of the value-generative potential of their approaches, even when not articulated in philosophical terms.

Ratti and Russo (2024) emphasize that value-promotion often occurs independently of scientists' intentions: methods embed values through institutional uptake and routine use. Our findings complement this structural analysis by showing how value-promotion is experienced within everyday research practice. Where Ratti and Russo trace downstream effects on governance and policy, we document how researchers reason through methodological orientations when confronting situations that require normative judgment. The vignettes suggest that methodological orientations channel what researchers perceive as legitimate action, indicating that value-promotion is a structural as well as a lived dimension of epistemic cultures.

Bringing these perspectives together extends the science–values argument. Philosophical accounts emphasize that methods and concepts promote values regardless of intention. Our findings show that scientists themselves often enact methodological orientations as value-bearing frameworks. These orientations are simultaneously value-expressive, articulating commitments tied to responsibility and professional identity, and value-generative, reinforcing institutional, political, and ethical arrangements through routine practice.

## 5. Responsibility, Reflexivity, and Methodological Pluralism

The convergence between our empirical findings and recent philosophical work suggests that methodological orientations constitute key loci where responsibility in science is negotiated and enacted.

Scientists adopt methodological approaches not only for their epistemic affordances, but also because they align with commitments such as rigor, inclusivity, critical engagement, or policy relevance. At the same time, these orientations shape the institutional and social consequences of research by influencing what counts as valid knowledge, which actors gain authority, and how findings are mobilized in decision-making.

Methodological orientations function as both constitutive and infrastructural elements of scientific practice. They are constitutive insofar as they define standards of evidence and credibility, and infrastructural insofar as they organize practices, institutional relations, and pathways of influence. Choosing a methodological orientation is therefore more than just an epistemic decision about rigor; it is also a situated judgment that shapes how science relates to society and whose concerns become visible.

Philosophical analyses illuminate these dynamics. Ratti and Russo (2024) show that methods can promote particular values by shaping governance practices and policy responses. Politi (2024) demonstrates that anticipatory responsibility is unevenly distributed within research teams, while Popa (2024) emphasizes that methodological choices influence public trust and epistemic justice. Together, these perspectives indicate that responsibility in science extends far beyond reliability and harm prevention, to include reflection on how research practices shape social norms, institutional arrangements, and relations of trust.

Recognizing the value-bearing character of methodological orientations does not collapse epistemic judgment into politics; rather, it highlights the entanglement of epistemic and normative considerations in scientific practice. Reflexive awareness of how methodological orientations express and promote values thus becomes a component of responsible research practice. Methodological pluralism, in turn, can be understood not only as an epistemic virtue, but also as a democratic one, enabling diverse value commitments to be articulated and critically scrutinized.

This awareness extends existing accounts of responsibility. Douglas (2003, 2009) argues that scientists cannot escape general moral responsibilities and must consider the consequences of their work. Our findings suggest a further dimension: responsibility includes reflection on the consequences of research findings, but also on the value-consequences of methodological approaches themselves.

If methodological orientations are sites where values are expressed and generated, they also generate responsibilities for scientists and philosophers alike. Methodological choices cannot be justified solely on technical grounds; they must also be evaluated in light of the values they sustain and the social consequences they produce. Cultivating reflexive, value-aware scientific practice thus becomes an essential component of responsible research.

These implications resonate with qualitative research on responsibility in practice. Politi (2024) shows that anticipatory reflection is often concentrated among principal investigators, while early-career researchers may lack both empowerment and recognized venues for value-oriented deliberation. Our findings complement this insight by specifying what such deliberation must address: methodological orientations as constitutive elements of research practice that both express commitments and shape institutional and societal outcomes. Popa (2024) further demonstrates that methodological and conceptual choices are not normatively neutral; they shape epistemic justice and influence public trust in science. Taken together, these insights support training and

evaluation practices that cultivate value-aware methodological reflection across career stages while attending to the broader democratic stakes of responsibility in science.

## 5. Conclusion

This article has examined methodological orientations in the social sciences as value-bearing practices that shape how researchers understand and negotiate responsibility. Building on recent philosophical accounts of the bidirectional relationship between science and values, we have argued that methodological orientations are not neutral technical choices but frameworks that express and promote values through everyday research practice. Our empirical study supports this claim by showing that social scientists' reasoning about normative dilemmas is patterned by their methodological orientations, which they associate with legitimacy, appropriate action, and public relevance.

These findings illuminate how methodological orientations operate in two normative dimensions. They are value-expressive, insofar as they articulate researchers' epistemic and ethical commitments, and value-generative, insofar as their routine use reinforces institutional expectations, evaluative standards, and forms of credibility that extend beyond individual intention. At the same time, orientations are shaped and sustained by disciplinary cultures and institutional incentives. As a result, researchers inhabit methodological orientations through a reciprocal process in which personal commitments and professional pressures may converge or diverge, influencing how responsibility is interpreted and enacted.

Recognizing this dual and reciprocal character enriches existing accounts of responsibility in science. It suggests that responsible research involves not only reflection on the potential consequences of one's findings, but also awareness of how methodological choices themselves shape the normative landscape of inquiry. From this perspective, methodological pluralism has epistemic as well as democratic significance: it supports more robust critical interaction and enables diverse perspectives to challenge assumptions, identify blind spots, and sustain the social conditions of objectivity.

While our findings do not track downstream policy or institutional effects directly, they reveal the interpretive frameworks through which social scientists anticipate such consequences and position themselves within them. The study thus complements structural accounts of value-promotion by illuminating how its dynamics are

experienced within everyday epistemic practice. Future research could extend this work through ethnographic or longitudinal approaches that trace how methodological orientations interact with institutional regimes over time.

By grounding philosophical analysis in qualitative empirical material, this article shows that methodological orientations are consequential not only for how researchers generate knowledge, but also for how they understand their responsibilities within scientific and public life. Reflexive engagement with the value-expressive and value-generative dimensions of methodological orientations is therefore an essential component of responsible social scientific practice.

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#### **Ethical approval:**

This study was performed in line with the principles of the Declaration of Helsinki. Ethical approval was granted by the Ethical Committee of the Institute for Social Research in Zagreb (Protocol No. 7/2023).

**Informed consent:**

Informed consent was obtained from all participants. Participants were informed of the purpose of the study, anonymity protections, and their right to withdraw at any time before completing the protocol.

**Competing interests:**

The authors declare no competing interests.

**Data availability:**

The data that support the findings of this study are available from the corresponding author upon reasonable request.

**Author contributions:**

The first author led the study, contributing to the conceptualization, design, data collection, analysis, and manuscript drafting. The second author collaborated on the empirical work, contributing to data collection, analysis, and writing. The third author provided substantial input on conceptualization, development of theoretical framing, and discussion. All authors read and approved the final version of the manuscript.