Enriching Rationality: Rehabilitating Practical Reason in Service to Sustainable Agriculture

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Enriching Rationality: Rehabilitating Practical Reason in Service to Sustainable Agriculture

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ABSTRACT: An enriched notion of rationality, incorporating practical reason as a rational extension and necessary complement to technical rationality, would help to reorient agriculture on a more sustainable course. Strengthened professional practice would recognize the normative core of both theoretical and practical rationality and the value of contextually-sophisticated boundary critique.

KEYWORDS: practical reason, rationality, relationships, sustainability, sustainable agriculture, values, boundary critique, systems

1. INTRODUCTION

The sustainable agriculture discourse is fraught with disagreements about what sustainability means and normative questions of how socio-ecological systems ought to be developed. Disagreements stem from differences in values as much facts. Values are eyed suspiciously in institutions governed by instrumental rationality. Scientific norms of objectivity often run below the level of awareness, with sometimes troubling consequences, such as marginalizing those with non-expert status and, in extreme form, “scientism,” which brokers no other truths or modes of attaining knowledge.

This paper focuses on the development of normative thinking and practical rationality. Normative thinking, defined as “the ability to collectively map, specify, apply, reconcile, and negotiate sustainability values, principles, goals, and targets” is one of five critical competencies for sustainability research and problem solving identified at an American Association for the Advancement of Science workshop on Bridging Science and Society (Wiek, 2010, p. 10).

Sustainability is a value-laden and contested concept (Blewitt, 2008; Davison, 2001). Wals and Bawden (2005) see something positive in this ambiguity in that it allows for the contextualization and joint exploration of meaning. . . . through dialogue, discourse, negotiation, joint fact-finding, mediation, etc., people can arrive at their own interpretation of sustainability as contextual and relevant to their own situation within a broader context of ecological responsibility and ethical defensibility. (p. 27)

However, contested views of sustainable agriculture may resist easy resolution because of differing assumptions about epistemology (how nature is known) and ontology (the nature of being).

The overdue rehabilitation of practical reason may begin with an understanding that (and why) the dominant instrumental (often utilitarian) concept of theoretical rationality is
insufficient to sustain what is good in our world. It is simply inadequate to the challenges that lay ahead. I draw from a number of sources to support this view, beginning with Aidan Davison’s (2001) explication of practical reasoning, especially in relation to technology. I explore two methodological approaches that privilege practice, Concrete Reflection and Critical Systems Heuristics, articulated by Don Marietta Jr. (2004) and Werner Ulrich (2005), respectively. Both approaches challenge the separation of theory and practice, distinguish practical rationality from theoretical (instrumental) rationality favored by professionals in most institutions, and position practical rationality in a bounded, contextually-rich realm. This place-based realm is replete with relationships, quality, and diversity—all central to my understanding of a sustainable agriculture. I use examples from my teaching and extension practice to explore each in the institutional context of professional practice in a land-grant university, and focus on how boundary critique, an extension of systems thinking (another critical competency for sustainability research and problem solving), can inform reflective professional practice. The payoff for rehabilitating practical reason is an enriched rationality that better serves agriculture and the public good, and preserves a place for ordinary citizens in science-imbued public discourse.

2. WHAT IS PRACTICAL RATIONALITY?

Practical reasoning is disciplined thinking that guides our search for the good in a world of particulars (Davison, 2001, p. 160). Practical rationality, what Davison (2001) calls the rationality of relationality, is developed and expressed through embodied relationships. Practical reasoning is moral reasoning; it is normative thinking. The ancients also understood practical reason as normative (Taylor, 1989, p.86). To be rational was to have the correct vision, or in the case of Aristotle’s *phrónesis* (practical wisdom), an accurate power of moral discrimination. Without a sense of what good to orient us, practical reason is merely procedural.

Practical reason challenges the dualistic separation of theory and practice, and other dualisms (such as fact/value and subject/object) that have long held center stage in the moral science tradition which predominates in academic ethics (Davison, 2001, p.145). This strain in modern moral philosophy shares “a fidelity to technological ontology and instrumentalist epistemology” (Davison, 2001, p. 145), which aspires to “the categorical, universal certainty of the natural sciences in making detached, principled observations about moral judgment.” In the reasoning of moral science, theory is pure cognitive activity and practice is pure bodily action. Most moral scientists work from an “a priori view which regards reason as the arbiter both of theoretical reflection and daily practice” (Davison, 2001, p. 145). Separated in this way, practice is viewed as either devoid of theory (habitual, intuitive or instinctive behavior) or contingent upon the application of theory (rational, scientific, productive behavior). The term practice is now so separated from and subordinated to theory that it is defined in negative contrast to theory (Davison, 2001, pp. 160, 161).

Practical reasoning takes account of the claims of principled thought on our actions, but does not make the embodiment of these principles the point of action. John Dewey (1891) said: “[A] man has not to do Justice and Love and Truth, he has to do justly and truly and lovingly. And this means that he has to respond to the actual relations in which he finds himself” (p. 28). As Dreyfus and Dreyfus (1990) note, “[E]thical practices can function perfectly well without abstract universal principles of rightness being invoked, while principles of rightness are
totally dependent upon the everyday practices for their application” (p. 258). Theoretical and technical knowledges may be necessary but they are not sufficient for the flourishing of human life. In my view, sustainable agriculture is all about the flourishing of life (and not just human life). Practical reason does not seek theories that are universally conclusive, or to “gain authority over ambiguity” (Borgmann, 1984, p. 7), but rather to “provide small, transient spaces of clarity amidst the ambiguity of human experiences” (Davison, 2001, p. 165).

Practical inquiry moves us from epistemology-based ethics to world-affirming ethics-based epistemologies (Cheney & Weston, 1999, p. 128), shifting focus from observation (the legacy of a belief-centered ethics) to participation. Practice is not an application of ethical knowledge, but constitutive of ethics itself. It puts ethics in place.

The reward of practical reasoning is neither systematization of theory nor technological efficiency, but cultivating wisdom about what is most precious in our world (Davison, 2001, p. 165), not in discerning what is absolutely right to do, but in nurturing relationships with particular people and places which orient our moral judgments and bind us to a shared world. Practical wisdom draws from everyday practices to align our actions to moral horizons. We work out a vision of the good within the partialities and ambiguities of embodied practice (Davison, 2001, p. 165). There is no absolute blueprint for practical reason; our ends are constituted through our participation in our materiality. As Dewey formulated, our moral ends are only ever ends-in-view (Davison, 2001, p. 163). They can only reflect the line of sight afforded by our embodied location. Moral praxis is an end in itself, action that sustains the well-being of our world.

Taylor (1989) describes practical reason as comparative and error-reducing, as reasoning in transitions (p. 72). In contrast to logical reasoning, “practical reason works from the specific, embodied, and experiential towards the generic, responding to claims made on us in particular situations, by particular people and particular things” (Borgmann, 1984, p. 7). Practical judgments may take the form of strong evaluations based on love for what is decisively good (Taylor, 1989, p. 20). Practical wisdom is often encoded in biographical or communal narratives. The moral is in the story. Practical inquiry is also perspectival and fosters a kind of experimental inquiry (Davison, 2001, 162).

Davison’s explication of practical rationality, delving deeply into technology, is central to discussion of sustainable agriculture. Technology has made conventional production agriculture what it is today. Davison (2001) sees everyday practices deformed by a division of means and ends, between “a foreground of apparently autonomous human agency and background of apparently autonomous machinery” (pp. 175–176). Academic discourse is routinely restricted to the foreground, while the background is given over to maximum sustained production. In agriculture, the unquestioned imperative is to increase yield, while background conditions and relationships are rendered invisible. We may raise ethical questions in the foreground, while the background reifies an instrumentalist understanding of moral life in which we experience nature as homogenized (Davison, 2001, pp. 86, 87). Subordinating our relationality to our productivity, we rarely acknowledge much less influence the exploitative nature of our relationships with other beings, or examine “the power of products, of the material results of production to shape our conduct profoundly” (Borgmann, 1992, p. 110).

Davison (2001) uses an agricultural example to help us appreciate the juxtaposition of background and foreground, suggesting that we consider the ways in which industrial agriculture is bringing about a standardization and homogenization of agricultural practices. Modern technological advance in agriculture has drastically
reduced the diversity of productive species, landscapes and rural communities, and it continues to do so. Industrial agriculture has established ecologically moribund, machine-dominated monocultures around the globe. Yet we consume the resultant agricultural produce as a stupendous array and a sizzling celebration of traditional world cuisines. (p. 144)

Technology is intricately bound up with our daily lives, but we fundamentally misunderstand it (Davison, 2001, p. 101). Technology is not a neutral vehicle of human agency, but the essence of human agency, in all its manifestations: ambivalent, unpredictable, honorable, and depraved as are its human agents. The issue of technology is not one, but many problems, says Stephen Ross (1994): “[H]ow we can work toward the future, given that our forms of practice determine and transform that future, enrich and despoil it?” (p. 270).

We counter productivism by moving relational qualities such as love, care, and respect to the center of everyday experience and developing awareness that wanting to belong to a welcoming, sustaining world is as rational as valuing material gain (Davison, 2001, p. 168). We do not live by bread alone. Sustainable agriculture is, as I see it, an ecological agriculture that cultivates relational qualities in addition to food, fuel, and fiber. Davison shares personal examples for living in a more sustaining way. I offer examples of disciplined, rational inquiry-based practical engagement from the more public stage of classroom and professional practice, moving, in terms used by Davison (2001), toward world-disclosing awareness of moral orientation/disorientation and cultural world-building. The production of worlds (poiesis) and the revealing of worlds (praxis) are irreducible dimensions of human agency, not to be conflated, polarized, or made mutually exclusive (Davison, 2001, p. 176).

3. CONCRETE REFLECTION, THE IDEA

John Dewey (1931) viewed the neglect of context as the besetting fallacy of intellectualist reflective thinking (pp. 5, 17). Abstractions that are not/cannot be related back to the material of experience break with reality and lose meaning and relevance. We restore meaning by contextualizing, by focusing on the particular. Concrete Reflection is part and parcel of practical reasoning.

Environmental philosopher Don Marietta Jr. (2003, 2004) distinguishes concrete, contextualized reflection from abstract, intellectualizing reflection, which separates values from facts, and values from other values (p. 123, p. 17). Subjecting values to the rules and procedures of logical reasoning violates the unity of our world. Sometimes called phenomenological reflection, Concrete Reflection begins with nonjudgmental observation. It is not the abstract and analytical sort of reflection, which sorts through things and places them in previously acquired, and usually unquestioned, categories. It is a reflection that seeks to describe our awareness of the world with as little presupposition as possible. . . . finding the world there for us, not only in its physical qualities but also with values. (Marietta, 2003, p. 131)

Concrete Reflection accesses the “perceptual dimension that underlies all our logics” (Abram, 1996, p. 69) and receives the “upsurge of a true and accurate world” (Merleau-Ponty, 1962, as cited by Marietta, 2003, p. 122). We discover rather than invent unity and oneness. Called variously primal, precognitive and prethetic, we gain a more original, immediate, direct, and less theoretically structured awareness of the world (Marietta, 2003, pp. 121–122,131), one in which we can recognize the value of an object before recognizing its physical qualities.
Material, concrete, immediate reality (whether involved in maintaining technological machinery or facing the oppressive reality of hunger or illness) is demanding and continuous. Marietta (2003) explains that:

Our perception of whole contexts in concrete reflection enables us to move from the particular to the general, and it provides a context for seeing the connection between description and explanation. The horizon of the matters reflected on is flexible. It can focus narrowly on an object in its more immediate context, or it can see the matter in a much wider context, a context in which other similar things can be attended to [which] incorporates naming and grouping of things. Since we see some things as associated with other things, including seeing some as causally related to others, an element of explanation enters our reflection. At this point, we must be careful not to let reestablished schema override our attention to the matters themselves. A critical attitude toward interpretive schema and a frequent return to the matters themselves is an important difference between concrete reflection and abstract, intellectualizing reflection. (p. 122)

Returning to matters themselves echoes the phenomenological influence of Husserl and Merleau-Ponty (Marietta, 2004, p. 18). The division between the physical and social aspects of the world, and between self and environment, is blurred in Concrete Reflection, freeing us from the constraints of formal logical reasoning. Trying to deal with facts, values, and obligations in terms of logical reasoning is futile. Once separated in abstract reflection, we can’t put facts and values together again. Marietta (2004) likens values separated from other values to lonely frightened prisoners being tortured in a back room: they do not stand up very well to introspection and close scrutiny (pp. 16, 17). Understood abstractly, honesty, beauty, or friendship, or justice, love and truth, are at a significant disadvantage separated from the contexts in which they would have meaning. Few proponents of sustainability would feel the need to separate this complex of values: honesty, respect, fairness, responsibility, compassion. Sustainable agriculture is both a value-added and a values-added agriculture (Ikerd, 2008).

Concrete Reflection draws from stories about, and experiences involving, everyday people in their day-to-day lives to capture what is personally and ethically significant. It contextualizes in ways that centralize relationships (Warren, 2000). Putting things into context puts them in perspective and brings them into focus. It enables a view of them in relationship to each other and to background conditions. Things are what they are in contrast to other things, relative to what's different. Meaning (what is significant, valuable) is a function of context.

Relationships are hard to grasp, to visualize, to classify, to treat scientifically (Brunello, 2009), but when we hear people speak of their love for their family or their land, and we walk on this land and talk with family members, relationships become real. Stories open a window to values and provide access to important details. Wendell Berry (1990) writes about relationships embedded in particular contextual detail when he observes that neither economy nor nature can be abstract in practice. When we adopt nature as measure, we require practice that is locally knowledgeable. The particular farm, that is, must not be treated as any farm. . . . Farming by the measure of nature, which is to say the nature of the particular place, means that farmers must tend farms that they know and love, farms small enough to know and love, using tools and methods that they know and love, in the company of neighbors that they know and love. (p. 210)

As Aldo Leopold (1949) puts it: “We can be ethical only in relation to something we can see, feel, understand, love, or otherwise have faith in” (p. 214)
Charlene Seigfried’s (2002) feminist elaboration of the dangers of context-free thinking helps us understand why Concrete Reflection needs to be critical:

Abstract thinking that does not recognize and call into question its own background conditions and embeddedness in social and political power structures inevitably distorts reality and mistakes its own perspective for unbiased access to the truth. (p. 6)

Exploring connections that tie us to a particular social and ecological spot illuminates the systemic aspects of the world in which our engagements take place (Davison, 2001, pp. 168–169), contributing political depth to our understanding of sustainability, e.g., revealing how technological change encodes the political interests of patriarchal and other elites (Davison, 2001, pp. 99, 175).

Practical inquiry seeks to illuminate the world-disclosing symmetry that Borgmann (1992) says always exists between the quality of human life and its material setting:

To bring out the contrast between these symmetries is a task that is at once ontological, moral, aesthetic, theological, and political. It is ontological in raising the problem of what is real. It is moral in directing us to the very substance of human conduct. It is aesthetic as it involves us in the question of what human works are centrally enchanting and illuminating. It is theological because it leads us to the issues of grace and divinity. And it must become political and make us consider our responsibility for the common order. Either we see this task in all of its dimensions or we will miss it altogether. (pp. 96–97)

Practical reasoning can reveal the multiple dimensions as one.

As Borgmann reminds us, “Talk of practices remains inconclusive until it hits the catalytic layer of tangible reality” (as cited by Davison, 2001, pp. 148–149). As expressed poetically by Mary Oliver, “[I]t is the intimate, never the general, that is teacherly. . . . Time must grow thick and merry with incident, before thought can begin” (as cited by Davison, 2001, p. 167). It is to incident that I turn next.

4. CONCRETE REFLECTION, ON THE GROUND

Concrete Reflection figures centrally in the field portion of a sustainable agriculture graduate course I have taught for the past eight years, Agroecosystems Analysis (Wells, 2010). Over a two-week period, we visit about two dozen agriculturally-related sites, interspersed with concrete reflection sessions. As described by Dewey and Marietta, conceptualization tends to unfold through concrete reflection on experiences. We reason practically about the prospects for a sustainable agricultural landscape by reflecting on experience and practices in their actual, material context. We return to the matters at hand with stories, examples, and occasional reference to facts in field notes which record the details for each visit (Marietta, 2004, p. 17). The concrete, immediate reality of our visits focuses our attention.

Concrete Reflection in groups has advantages over individual reflection. Students coming to class from multiple disciplines and backgrounds inevitably have different takes on what they have seen and experienced, and have rather firm ideas about right and wrong and good and bad. Their individual worldviews surface during the early days of class. The 20 or so students intersubjectively engage a material context. This is similar to the peer view of scientific reports, but differs in group engagement (Marietta, 2003, p. 132). The group
intersubjectively interrogates/critiques preconceptions, worldviews, beliefs and values (with occasional reference to facts recalled or recorded in field notes).

Reflection tempers premature judgments. For example, a tendency early in the course is to “blame the farmer,” in part because many students still think of agriculture in terms of individual farms and farmers. Concrete Reflection enhances appreciation of the systematic properties of what is experienced, as students are challenged to view themselves as part of the system and reflect on where blame, if any, might reside. Reflecting individually, conversationally, and in groups can produce breakthrough Aha! moments. Reflection continues in the weeks, months, and even years after the two weeks afield, but this experience is formative. Students report years later that they draw upon examples from the class. Examples continue work because they call forth the material context in which the activities took place (Davison, 2001, pp. 171, 172).

Reflecting concretely on the unique circumstances of people in place and in relationship can reveal how issues (perhaps related to gender, labor, land tenure, or technology) play out on the ground, in context, adding political depth and bringing matters of structure and power into the conversation in the critical sense implied by Siegfried. We find women farmers and landowners embedded in a complex thicket of family and neighborly relationships, all in the context of historical stereotypical gender roles and institutional neglect (Wells & Eells, 2011). We expose policy frameworks that promote individually rational behaviors with unfortunate collective consequences. Concrete Reflection reveals “the power of products, of the material results of production to shape our conduct profoundly” (Borgmann, 1992, p. 110). We find farmers caught on the technological treadmill or locked into technology. We encounter people on the meatpacking line fitted to machines rather than machines engineered for them. We discover that while some farmers operate successfully off the grid, they do not do so without technology, even Amish farmers who limit its intrusion into their homes to avoid damaging relationships, revealing the ambiguous relationship we all share with technology.

We grapple continuously with systems boundaries. What is in the system, and what is not, change as matters reflected change. Boundaries are always in flux and needing to be redrawn. Students are challenged to capture the appropriate context, as they come from a mix of disciplines, with areas of study ranging from focus on the microscopic field level to communities to larger scale ecosystems. As explained by Watzlawick, Beavin, and Jackson (1967) to appreciate the details of a relationship between an event and the context in which it occurs (or between an organization and its environment) requires casting our net of observations wide enough to include this context (pp. 20, 21). Sometimes a big net is required and sometimes a small net will suffice. Metaphors, such as casting nets, come in handy.

The notion of zooming in and zooming out, as used in films and geographic mapping applications, is also useful in framing situations. In zooming out, we cast our net widely to include the context in which an event of concern occurs while attending to the details of the relationship. Intentionally shifting perspective by zooming out expands the context/boundaries of inquiry as needed for understanding or explanation (Brunello, 2009). We can zoom out to encompass whole ecosystems or policy environments. Expanding our boundary of concern to include the hypoxia zone in the Gulf of Mexico captures the downstream consequences of farmers’ cultivation practices. Extending the boundaries of inquiry shifts our focus to include the effects of certain behaviors on others, how those others react to it, and the context in which this takes place.
We may need to zoom in to see everyday people in their day-to-day lives, embedded in a rich web of relationships, or to see diversity and observe the resilience of nature. Sometimes we zoom in to feel and smell the soil or examine water through a microscope. My co-teacher speaks of the view from 2,000 feet, an elevated view that may be too abstract or just what is needed, depending on the context. When the view from 2,000 feet lands students in overly abstract waters, we “tie the balloon to the ground” with examples. The following elaboration of Critical Systems Heuristics adds analytical depth to the notion of boundary judgments.

5. BOUNDARY CRITIQUE

Critical Systems Heuristics (CSH), a methodological tool developed by Werner Ulrich (2010), incorporates the normative dimension as an intrinsic part of rational argumentation. It seeks at a general level to empower ordinary citizens as well as professionals to deal with everyday conditions of imperfect rationality (rather than assuming everyone is willing and able to be perfectly rational). The bare-bones of this framework, called the eternal triangle, is shown in Figure 1.

![Diagram of Boundary Judgments]

Fig. 1. Source: Ulrich (as cited in Ulrich, 2005, p. 6)

I view boundary critique as part of systems thinking competency, one of the five critical competencies mentioned earlier (Wiek, 2010). Ulrich views boundary critique as the most important part of CSH. Systems approaches assume that everything is connected to everything else, but systems must be bounded in some way to distinguish the whole system from aspects to be treated as environment. Selectivity, not comprehensiveness, faces those who want to solve problems or do something about the state of the world. Holism may be a worthy ideal, says Ulrich (2012), but it is not practicable. Boundary judgments are essential to fully operationalize the systems concept. We inevitably make different boundary judgments about problem situations because we occupy different positions, have different vantages/standpoints, and possess only limited knowledge. In CSH terms, boundary critique is a critical turn of applied systems thinking; it recognizes only critical (not objective) solutions to the fundamental problem of practical reason, of how claims to rational practice can be justified in the face of inevitable selectivity and partiality. Critical systems discourse as a dialogical process of boundary critique systematically identifies the boundary judgments built into specific validity claims in an effort to unfold their normative core (selectivity) and what it...
means for the parties concerned (partiality). It reveals how the claims in question may differ in light of various ways of defining boundaries.

In critiquing “the concept of rationality that underlies most of contemporary systems theory and systems methodologies,” Ulrich (1993) notes that most of contemporary systems theory and systems methodologies and the conventional analytical reductionist model of science share roots in Kant’s ideal of a comprehensive rationality. This analytical reductionist model deals with the problem of holism and rigor though the controlled laboratory experiment, which temporarily suspends the inseparability of problems from their environments. In theoretical-instrumental terms, the experimental sciences approximate the ideal of complete rationality by the best possible control of external interferences, thus rendering comprehensive instrumental rationality practicable within the limits of the experimental conditions under control. Reductionism and the holistic quest for comprehensiveness are thus a product of the same concept of rationality, making the problem of sustainability deeper than our willingness to become more holistic in our ways of thinking. The deeper problem lies in the concept of rationality that underlies most of contemporary systems theory and systems methodologies.

Boundary critique may take the form of reflective practice (handling boundary judgments self-critically) or emancipatory practice (using boundary judgments for critical purposes against those who may not handle them so self-critically). In this paper, I recommend that CSH as reflective practice be part of professional development and employed, as situations warrant, for emancipatory ends. With cooperation, boundary judgments can sometimes, but not always, move toward consensus. Boundary judgments can also be used critically against those who are not prepared to disclose or question them or who try to impose them on the basis of authority or power. Critical systems discourse becomes a discursive process of challenging validity claims by demonstrating that/how they depend on boundary judgments that have not been declared or are imposed nonargumentively.

Boundary critique via CSH can empower ordinary citizens to deal with situations of unequal expertise and power, even working on behalf of the most marginalized or excluded and rendering those less skilled or subject to structural conditions of inequality equal and competent participants. It can support those who are affected but not involved or without voice in a problem situation. Emancipatory practice asks:

Who will voice the concerns of those affected but not involved, or those without voice? Who has the legitimate right to act on behalf of these people? Who has the moral authority to do so? What worldview do we want to rely on/privilege? (Ulrich & Reynolds, 2010, p. 279)

My initial effort to apply CSH has focused on an international development case which involves a land-grab by a private energy company with deep, political ties to Iowa State University (ISU) (Wells & Carter, 2013). More recently I have considered the case of raw milk, upon finding that ISU has lobbied against legislation to legalize the on-farm direct sale of raw milk (lobbying against some ISU stakeholders who support state legislation to get this law changed). Both cases reveal disagreements which, appearing on first glance to be substantive and factual, may be more about values, and even more about boundaries.

In the raw milk case, following Ulrich (2011), it falls to advocates of instrumental reason who are opposed to this legislation to define their values, facts, and boundary judgments, whereas citizens who are critiquing this position need only challenge one of the three corners of the triangle (Figure 1). This places the burden on ISU to justify their normative, factual, and boundary claims, whereas irrational citizens who want to buy/sell raw
milk have to successfully challenge only purported facts, values or boundary judgments. I say purported facts because factual scientific claims are so mutable. Opponents to raw milk may argue, factually, that pasteurized milk is just as nutritious as raw, but the proponents of raw will contest this with science of their own that says otherwise. Science can be found on either side of most agricultural issues, and is rarely the magic ingredient for resolving controversy. Values inevitably enter the fray.

In boundary terms, the claims made to oppose the legalization of raw milk sales overreach. The ISU position, to outlaw raw milk in every conceivable circumstance, ignores that the proposed legislation would limit the sale to on-farm sales. Within the boundaries of the U.S., there is striking variation in the restrictions various states put on the sale of raw milk (Farm-to-Consumer Legal Defense Fund, 2013). The sale of raw milk on-farm is allowed in many U.S. states, including every state neighboring Iowa. Some states (including populous Pennsylvania and California) allow for the retail sale of raw milk.

The convergence of ISU’s position with that of industrial milk interests does not escape notice. Public suspicion that corporate influence may be at work weakens ISU’s claimed interest in the value of public safety. A pattern of supporting private gain over the public good threatens to expose concern for public safety as mere protecting private interests (Food and Water Watch, 2012). The value of food sovereignty (the freedom to choose) is not on ISU’s radar.

Strategically, critics can point out that ISU has an obligation to the public interest and stakeholders. Critics can point out the inconsistency of ISU’s position, advocating for precaution when such principle is routinely dismissed or ignored in the case of so many issues in industrial agriculture. Inconsistencies not withstanding, they might also point out the recent institutional pattern of acting against the public good for private gain. They might resort to a course of shaming, for lack of a better word, by making public breaches in the public trust.

Pointing out that ISU’s claim is selective and partial, or even inconsistent, is unlikely to change institutional minds because considerable power and objective, value-free science supports this view (a looming unstated value!). The larger context may be the at least partial capture of the research agenda by corporate interests. This issue, as many involving industrial agriculture and its powerful partnership with public universities, is not going to be solved discursively by CSH, but such strategy can inform/support change efforts—hopefully, eventually, from inside the institution.

CSH is a not a prescription. Nor is this brief foray meant to be exhaustive, only illustrative. Ulrich’s view is that boundary critique be used together with other methodologies, ideally prior to application to inform the selection of other methodologies.

6. CONCLUSION

The various treatments of practical reason in this paper do not seamlessly make a finished garment. However, all challenge the separation of theory and practice, distinguish practical rationality from theoretical (instrumental) rationality, and position practical rationality in a bounded, contextually-rich realm.

Understanding the inadequacy of the instrumental, utilitarian concept of rationality can support the incorporation of practical rationality/reasoning as a perfectly rational extension and necessary complement to technical rationality. In my view, the burden of effective
communication of science falls on scientists and other professionals, including moral scientists, to understand, minimally, that:

- science has limits/boundaries
- technology has an underside; not everything that can be done technologically should be done (it is not neutral)
- all knowledge is partial
- values are already in theoretical reason/discourse, waiting to be uncovered/revealed
- scientists, applied or otherwise, are subject to everyday conditions of imperfect rationality

Practical rationality/reasoning plays second fiddle to the theoretical rationality at institutions, such as the Iowa State University of Science and Technology. What does the motto that accompanies this long form name, *science with practice*, mean? Probably not practice elevated to coequal status with theory (although it may have been the case at one time).

Borrowing from Ulrich (2012) I would urge scientific practitioners to:

- Make boundary critique a standard practice, a norm of professional practice, a recognition that no professional intervention can do justice to all views and values, or justify all its implications; deal with this inevitable lack of complete justification in a transparent and self-reflecting way
- Systematically identify and examine contextual assumptions when intervening in a specific context and help others affected to understand them. Ask: How do these contextual assumptions shape the facts and values people consider relevant?
- Learn how problem definitions and solutions depend on and change with the facts and values considered relevant. Acknowledge and address divergent views and values.
- Reflect on the validity claims of professional findings/conclusions (one’s own as well as those of others) and their implications/effect as a basis for action on different parties.

My hope is that an ethically-informed professional practice would do this as a matter of course.

Differing views of sustainability often reflect differing assumptions about epistemology and ontology. Some view sustainability as just continuing to do what we are doing (feeding the world, producing and consuming more and more without question), but viewed normatively, in terms of values and the world in which we want to live, it calls for a way of being in the world (what Marietta (2003) calls an ontological commitment), not detached from it, but taking a view from somewhere.

I envision a place-based realm rich in relationships and diversity, a world both welcoming and nurturing. Viewing sustainability as practical craft in the manner articulated by Davison (2001), we can draw on deep practical wisdom and rationality to get us there (pp. 171, 172). Critical reflective practice by professionals and Concrete Reflection in groups—calling forth the material context in which the everyday, immediate experience and activities take place and questioning/revealing the systems that lie behind our practices—can help us on our journey. We can employ CSH critically against those who hold the reins of power and who knowingly or unknowingly keep us on an unsustainable course. Practical inquiry into what it means to sustain agriculture and well-being may save the ideal of sustainability from
instrumentalist, technocratic agendas. We must resist the suppression of our practical moral reasoning by instrumentalist epistemology (Davison, 2001, p. 145).

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