

# Open Peer Commentaries

## on Hugo F. Alrøe & Egon Noe's "Second-Order Science of Interdisciplinary Research"

### Seeking Common Ground on the Nature of Interdisciplinarity

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**> Upshot** • I draw connections between the target article and the broader literature on interdisciplinarity, highlighting areas of both agreement and disagreement. Suggestions are made regarding how interdisciplinary research should proceed.

« 1 » The literature on interdisciplinarity is widely dispersed. Yet there is, I think, increasing consensus among those who study interdisciplinarity around the nature of both interdisciplinarity itself and sound interdisciplinary research practices. I very much liked Hugo Alrøe and Egon Noe's target article, in part because it reinforces much of what I and other scholars associated with the Association for Interdisciplinary Studies (AIS) have been saying for some time. Yet the authors examine these issues from a different perspective than my own. As we both agree, it is by looking at issues from multiple perspectives that we gain our best understanding. I will in this commentary outline areas of both agreement and disagreement.

« 2 » The idea of "disciplinary perspective" has been central to the discourse in AIS for decades, though it is only in recent years that the components of disciplinary perspective have received much attention. The key elements of this are now clear to both of us: theories, methods, concepts, questions (§13). We would add "epistemological outlook" and

stress that these various elements are mutually reinforcing: methods are chosen that are good at investigating favored theories, and variables are investigated that are implicated by theory and amenable to methods. We would also stress that perspective is largely subconscious, and that it is strongly reinforced by Ph.D committees, journal editors, hiring committees, and tenure and promotion committees. But we agree with these authors on the central point: that disciplinary perspective shapes the way that disciplinary scholars approach their research. And one of the key barriers to interdisciplinarity is indeed that each discipline regards its approach as superior (§38): note that scholars in one discipline are likely to doubt results obtained in other disciplines because these not only use the "wrong" theory and method but investigate the "wrong" variables. Scholars in one discipline will be very familiar with the standards employed to evaluate research in their own discipline but are often doubtful that such standards exist elsewhere.

« 3 » "Interdisciplinarity" is, the target authors and I both appreciate, a contested term. As university presidents and granting agencies sing its praises, it is hardly surprising that many scholars have declared themselves interdisciplinary without reflecting on what this means. The mission that Alrøe and Noe and I share, of defining interdisciplinarity and suggesting how this is best pursued, is thus a vital one. Superficial analysis passing itself off as interdisciplinary threatens the entire interdisciplinary project. It is not enough to do a little reading in another discipline or have coffee with someone from another department – valuable though such practices are – in order to be truly interdisciplinary. It is thus unfortunate that these authors themselves equate "interdisciplinarity" as practiced at present with disciplinary imperialism (§55).

« 4 » Good interdisciplinary research, we both agree, requires that we self-consciously look at issues from multiple perspectives. Scholars associated with AIS have delineated what this might look like: we suggest a focus on the "insights" (conclusions) reached within each perspective, we stress the importance of an unbiased research question (object), we urge evaluating insights within the context of the perspective in which they were generated, and we have identified a handful of strategies for integrating insights into a more holistic understanding.<sup>1</sup>

« 5 » The authors say relatively little about how we might evaluate the insights generated within different perspectives. One useful approach here is to appreciate the key strengths and weaknesses of different methods and types of theory. Even specialist scholars will generally appreciate that their favored theory and method are imperfect, though they are likely to judge all alternatives as far worse. The interdisciplinary message is that different theories and methods often have compensating strengths and weaknesses. One method may be good at examining numerous data points simultaneously, while another is good at providing detailed analysis of one event or process. One theory may stress an agent's rational impulses, while another theory emphasizes the agent's non-rational impulses: both impulses may be at play.

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1 | The book by Allen Repko (2012), which the authors cite, is a good resource here, as is the "About Interdisciplinarity" section of the AIS website at <http://www.units.muohio.edu/aisorg/>

tant. To avoid the risk that all disciplines are missing something in addressing a particular problem, recourse can be had to a classification of all of the things investigated by scientists – this hopefully approximates the set of things that people care about. It can then be asked if a particular theory can be expanded to embrace other variables.

« 7 » The value of this paper is that Alrøe and Noe reach important conclusions regarding the nature of interdisciplinarity from a “perspectival” perspective. Much of the literature on interdisciplinarity has emerged from the practice of interdisciplinary teaching and research. It is also very important to ground interdisciplinary practice in philosophical reflection. The authors start from the recognition that observers shape what is observed. They note that philosophers of science have devoted far too little time to grappling with the challenges of interdisciplinarity. They hope that their paper will provide a philosophical justification for and understanding of interdisciplinarity. This is a laudable goal.

« 8 » I myself have urged a “Golden Mean” approach to a variety of epistemological questions (Szostak 2007). We need to critique the (often “positivist”) assumptions on which disciplinary hegemony rests. Yet we must do so without abandoning hope of scientific progress, for there is no value in interdisciplinarity unless it allows understandings that are in some way superior. These authors clearly embrace the idea of scientific progress (§11). However, they could have been clearer with respect to other epistemological issues. Though thoroughly “perspectival,” they argue that we can gain an “unambiguous” description of a “complex phenomenon” by looking at this from multiple perspectives (§22). Is there perhaps an objective external reality that we are limited in our ability to perceive but gain a better appreciation of by examining from different angles? It would seem that Alrøe and Noe must embrace dualism here but do not say so. They seem to speak favorably of the idea of incommensurability early on (§12), but admit later that some significant degree of cross-disciplinary understanding is possible (§75). I think we cannot speak of scientific progress unless we can understand each other well enough to recognize progress collectively.

« 9 » The authors at times exaggerate the novelty of their approach. This is under-

standable given the vast and diverse literature on interdisciplinarity. They argue that interdisciplinary scholars have stressed the language barriers to cross-disciplinary communication but not the perspectival barriers (§61). I would point them to O'Rourke et al. (2014), which addresses both challenges. The book grew out of the Toolbox project at the University of Idaho: members of (dozens of) interdisciplinary research teams were given an epistemological questionnaire, the different answers were then discussed by the research group, and the questionnaire re-applied. The range of answers generally narrowed, and team members reported that it was useful to appreciate the different perspectives of team members.

« 10 » Alrøe and Noe's proposals clearly overlap a great deal with those in Repko (2012): clarifying terminology, analyzing each insight within its perspective, mapping the connections among phenomena. Yet there seems very little about what I would see as the critical step of integration. There is a remark, “any deliberate approach to instigate change and transformation must take place through an established perspective” (§66) that I find rather cryptic. Repko (2012) instead stresses the value of finding some common ground: a concept or conceptual map or even a theory that all might potentially accept. This seems to be an important distinction. I do not see how the value of examining issues from multiple perspectives can be achieved unless we are able in the end to achieve some superior cross-disciplinary understanding.

« 11 » Careful definition of key concepts is one strategy for achieving common ground. Scholars sometimes appear to disagree because they define key terminology in different ways. Mapping the key causal relations involved in a complex problem is another: specialized scholars may disagree about the relative importance of different relationships but can potentially appreciate the overall set of relationships. Sometimes it is possible to expand a theory to embrace the variables emphasized by each perspective. When disciplines seem to disagree directly, it is often useful to transform dichotomies into continua: the economist's emphasis on rationality and the sociologist's emphasis on non-rationality can be combined if we appreciate that humans are neither completely rational nor non-rational. Strategies such as

these respect the importance of disciplinary perspective while allowing us to achieve cross-disciplinary understanding.

« 12 » The authors do not quite say it, but the implication of their paper is that the academy needs a body of scholars who are self-consciously interdisciplinary, and take as their task the examination of complex problems from multiple perspectives. Such scholars cannot replace disciplinary specialists but rather work symbiotically with these: drawing on specialized perspectival understandings and feeding back information regarding what might be learned from other perspectives. Happily, this sort of interdisciplinarity is entirely feasible: one need not master multiple disciplines but rather evaluate their insights into a particular problem in the context of disciplinary perspective. Strategies have been identified for each step in the interdisciplinary research process. Both individually and in teams, interdisciplinary scholars can usefully integrate diverse insights from diverse disciplines. The skills and attitudes of such interdisciplinary scholars may be quite different from those of disciplinary specialists, but the academy needs them both.

« 13 » In sum, I applaud Alrøe and Noe for providing a philosophical analysis of interdisciplinarity, for advocating a philosophically sound and feasible type of interdisciplinarity that will encourage scientific progress, and for suggesting what this approach might look like in practice. I join them in urging a specific understanding of “interdisciplinarity” centered on an appreciation of the importance of disciplinary perspective. We need to ensure that when granting agencies, university administrators, and journal editors seek to encourage interdisciplinarity, they have a strong sense of what good interdisciplinary practice involves.

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