

**REFLECTIONS ON THE NATURE OF  
INTERDISCIPLINARITY: A REPLY  
TO BENSON, HIS CRITICS, AND NICHOLSON**

**By**

**Forrest H. Armstrong  
Professor of Political Science  
Dean of Arts and Humanities  
Grand Valley State University  
Allendale, MI 49401**

**ABSTRACT**

Interdisciplinary refers generically to ways of confronting the world that do not comport with the currently conventional means of knowledge production--to a new lens through which to see clearly that which existing lenses do not bring into focus. Since Benson, the debate has been about whether interdisciplinarity, like the disciplines, could or should be foundational, whether it would be desirable to give up the openness it offers for the improved communication, rigor and community foundationalism might provide. Principles and openness, though, are but attributes of elements in the equation. Instead, it is on the basis of outcomes--of humanly useful results produced--that we should assess the value of something which arises from a desire to confront the world effectively.

**REFLECTIONS ON THE NATURE**

**OF INTERDISCIPLINARITY**

Interdisciplinarity has to do with the organization of inquiry--on that we seem to agree. Beyond that, though, lie vast areas of disagreement. Is interdisciplinarity a discipline or meta-discipline, a distinctive subject matter whose principles could be understood and specified and/or a distinctive method by which to integrate insights drawn from existing disciplines? Or is it a stance of openness, a reluctance to adopt any one way of viewing things born of a belief that no one "best"

way exists or that closure, which is often premature, tends to produce orthodoxies which impede rather than enhance our search for truth?

From the first perspective, interdisciplinarity is found wanting because it is not foundational: it lacks the consensual underpinnings, the agreed-upon principles and methods, which lend persuasiveness to findings in the disciplines. From the second, though, that very lack of consensus which makes possible the openness and freedom from disciplinary constraints constitutes interdisciplinarity's strength.

Both formulations have appeared in these pages as part of the dialogue Benson (1982) began by playing devil's advocate. Both contribute something, yet because both focus on attributes, not outcomes, both are lacking. Neither places sufficient weight on utility--judging interdisciplinary work by the contribution it makes to human welfare. Openness can free us from the tunnel vision convention promotes and allow us to see new things, but consensus on principles makes dialogue on those new insights possible and may lead to readier acceptance of them. Yet only if openness and consensus provide us a means of bringing important things into focus and seeing them more clearly, only if our vision through an interdisciplinary lens is truer for some humanly important purpose, is interdisciplinarity genuinely meaningful. Seen as a commodity, interdisciplinarity is measured best by its use value--what it contributes to our ability to act effectively in the world--not by the exchange or sign value it has for academic practitioners.

## **THE DISCIPLINARY ORGANIZATION OF INQUIRY**

In the modern era, inquiry has been organized and conducted through academic disciplines. The outlines of this structure--discourse communities with agreed-upon methods and specialized vocabularies which are established by higher education's use of the disciplinary department as its central organizational component and which are supported by professional journals and associations--have been developed by others (e.g. Kiger, 1971; Flexner, 1979; Swoboda, 1979) and need not be elaborated upon here.

We seem almost to reify the disciplines as being inevitable reflections of some essential truth, but we would be wrong to do so. They are entirely our constructions--simply sets of conventions, of "generally agreed upon canons and standards" which typify "a recognized branch or segment of knowledge within the domain of rational learning" (Kiger: 99). They exist because they serve to simplify inquiry and are in

some ways useful. Far from being immutable, though, disciplines come and go in response to their perceived utility: astrology and phrenology were once "sciences" upon which we drew when we sought to explain the world. In a contribution to our dialogue that deserves greater attention than it seems to have received, Klein (1983) suggests that using the organic metaphor helps us recognize the dynamic, evolving structure of knowledge.

A close look at many disciplines quickly reveals less coherence than convention. Consider economics, perhaps the most "disciplinary" of the social sciences. Classical economics in the marginalist tradition is almost mathematically deductive, yet macro economics is rigorous induction directed toward the here and now, while Marxism is historically based and in many ways closer to sociology (which split from economics because the latter focused too narrowly on market factors) than to other parts of what purports to be a single, coherent entity, a discipline. The same could certainly be said of other disciplines, and not just the social sciences (consider the range of methods and foci philosophy claims). These things lead White (1987) to describe the discipline as "a community of discourse organized around its disagreements, its ways of disagreeing, as well as its agreements" (p. 10).

Divisions within knowledge are neither new nor necessarily objectionable: difficulties with pursuing all knowledge simultaneously, combined with advances in the technology of knowledge production, have promoted the growth of academic specialties since before Aristotle. Organizational changes, beginning with the advent of the learned societies after Newton and the establishment of disciplinary departments in universities during the 19th century, professionalized the specialties and enabled the disciplines to become canonical, hence to promote such efficiency in knowledge production among practitioners working within the canon that the disciplines were able to achieve hegemony. One cost was that they became bounded fields from within which practitioners could no longer communicate effectively with persons outside the field (i.e. who were working from a different canon). As Birnbaum (1969) observes, trained capacity in one area leads to trained incapacity in another.

Recognition of the great need to devise a way of communicating across disciplines leads in our time to work like general systems theory, but the problem is not just a modern one. The search for a meta-discipline through which to embrace all knowledge simultaneously, a *primum mobile* of ideas, is as old as the human race. Newton's greatest

contribution was, arguably, that his mathematical model provided a means by which the canons of religion and science could be integrated.

In building the case for the utility of the disciplines, the lens analogy seems useful. A lens is simply a device we have crafted to enable us to see something more clearly than we could without it. It is a means to an end. But in bringing some things into clearer focus for us, it also obscures others; no one lens alone allows us simultaneously to see both the very large and the very small, both the whole and its several parts. As the end toward which our inquiry is directed shifts, as the questions we find compelling change, so also may we find that we require a different means by which to conduct that inquiry, a different lens with which to bring a different object into focus.

Each discipline can be thought of as a lens; the conventions and methods of each currently defined discipline bring some things into clear focus. As we seek to confront aspects of the world, we probably first determine whether an existing lens will work for us in that endeavor. If so, we use it--no need to reinvent the wheel. If not, we must go to the considerable additional work of grinding a new one to bring into focus that which cannot be seen in any other way.

Using existing disciplines is efficient: it saves effort by allowing us to build upon a common foundation--the work of countless others who are pursuing similar questions and refining means of doing so. This shared endeavor makes dialogue possible; to the extent that shared endeavor leads to shared understanding, it may also make the findings of work done in that way more persuasive. The danger, of course, is that we can agree on something that is incorrect and as a result reject a compelling new insight; just because large numbers of people agree that they cannot see something might mean only that they are wrong to look for it through the conventional lens.

Consensus also makes it difficult to detect erroneous agreement; it is hard to keep perspective on a paradigm while working within it. Disciplines have "positive value" when they are "tied to the detection of error and the value of an epistemic community for testing new work," but they have "negative connotations" when they stifle new ideas by "prematurely settling on one working paradigm" (Klein:39). Remember the scientific community's opposition earlier in this century to plate tectonics, now the dominant paradigm in geomorphology.

## THE INTERDISCIPLINARY RESPONSE

Benson (1983) proposes that interdisciplinarity is the "larger arena" in which to examine "practical and theoretical problems incapable of resolution within the confines of any one discipline" (p. 32). On that much of a definition, at least, we seem to agree, but we find it difficult to go beyond that. Part of our difficulty in articulating what interdisciplinarians are about and how that relates to work done in the disciplines results from our not yet having fully developed our own discourse community, our own unique concepts and clearly understood set of linguistic structures through which to engage and convey our ideas. Thus it is that the two different positions about the nature and value of interdisciplinarity that have evolved in these pages both define it in relationship to perceptions about the nature and value of the disciplines.

From the first perspective, interdisciplinarity is found wanting because it lacks the underpinnings of a discipline. In this view, the most pressing task confronting interdisciplinarians appears to be building that foundation, the interdisciplinary canon--an agreed-upon set of substantive foci and methods which would direct its practitioners.

The second perspective celebrates interdisciplinarity's open, non-foundational character because it finds that the canonical agreement which makes disciplines possible leads to orthodoxies and intellectual blinders which prevent us from seeing in new ways, hence understanding some things more clearly than we do at present. From this perspective, closure (agreement on definitional principles) appears always to be premature (a better idea could be just around the corner) and dangerous (by foreclosing attempts to find error in the agreed-upon principles). Here the interdisciplinarian's task seems to be to fight efforts to make interdisciplinarity foundational in order to preserve the opportunities for open and unfettered inquiry it affords.

## FOUNDATIONALISM

Benson began our dialogue by finding that, compared with foundational inquiry, interdisciplinarity "rests upon *serious conceptual confusion*" (1982:39). In 1983 he proposed that a "minimally adequate theory of interdisciplinary studies" ought to be able to specify "the means by which the interdisciplinarian locates his problems, the characteristic structure or logical form(s) of *the* [italics added] interdisciplinary

problem, and the method(s) used ... in resolving (them)" (p. 32). No such theory exists:

Is it a problem posed within a specific discipline that requires extradisciplinary light for proper resolution? Is it a problem that is posed within several disciplines, albeit from different perspectives, but satisfactorily resolved within none of them? Or is it the "homeless" problem, the concern too broad to be posed, much less resolved within the limits of any particular discipline? (Benson, 1983, p. 33)

His proposition that time spent on interdisciplinarity, at least by undergraduates will "impede" their developing the "essential disciplinary competence" without which interdisciplinarity becomes "a pedagogically doubtful business" is echoed in one way or another by numerous others (1982:41, 43).

In his earliest contribution to the dialogue, Newell (1983) invokes both disciplinary process and substance when he proposes that interdisciplinarians "bring the relevant disciplines (or schools of thought) to bear on the question, one at a time, letting each illuminate that aspect of the question which is amenable to treatment by the characteristic concepts, theories, and methods of their respective disciplines" (pp. 1-2). For Miller (1983) the practice of interdisciplinarity involves "acquiring the same kind of disciplinary competence of which Benson speaks" (p. 27). His interdisciplinarian then builds on that competence by identifying a "feasible" area of disciplinary combination, learning the pertinent disciplinary perspectives, including their methods of determining "truth" and "beauty," and then learning "several strategies of transdisciplinary integration with their advantages and disadvantages" (pp. 27-8).

Both Newell and Miller propose that the interdisciplinary method calls for its practitioner to evaluate the assumptions that underlie the disciplines, and influence the insights gleaned from them. Both see the interdisciplinarian's task and contribution as one which consists of "connect[ing] disciplinary insights" and which may result in "a richness of insight not available to the adherent of any one disciplinary orthodoxy" (Newell 1983:2).

Benson could, of course, ask for specification of the principles that Miller's interdisciplinarian uses to select among strategies of transdisciplinary integration or that Newell's uses to evaluate assumptions

on the basis of which to select as correct one set of connections among disciplinary insights instead of another. The answer, one could infer, might be that there is some all-encompassing set of principles and methods, some meta-discipline, which lies, currently hidden, beneath the process we go through as we seek to grind new lenses. Newell (1987) writes: "Interdisciplinarity is defined by process not substance .... Whatever it has to offer it can presumably offer to any problem or issue that is too big for any one discipline to handle, which means in practice most real-world issues" (p. 38). If one could but learn the meta-discipline, one could then integrate separately incommensurate understandings of the various parts into a cogent understanding of the whole--an interdisciplinary dream.

If there are truisms among interdisciplinarians, two must be that life itself is interdisciplinary (Petr 1983:21) and that interdisciplinarity is really only a way of "confronting] ... the world" (Newell 1983:1). It is not the only way of doing so, nor is it the primary way to analyze many discrete things. But the disciplines typically do not address effectively the complexity of lived experience. When we try to apply our insights actively to problems in the world, we often find we must proceed interdisciplinarily because the whole we seek to engage extends far beyond the purview of any one discipline. Interdisciplinarity in this sense is little more than a different, possibly more helpful way to seek answers (to confront the world). Utility is the key.

Except when referring to a meta-discipline, we typically use the term "interdisciplinary" to refer generically to a whole class of ways of confronting the world that do not (yet) have conventional names because they are new in the context of the time. Should one way become so broadly shared that it earns a name that conveys meaning (like social psychology or biochemistry), we would no longer have to refer to it generically.

The things we call interdisciplinary may have little in common besides their lack of a name at the moment and their inability to fit within an established field. Newell (1987) does propose that interdisciplinary ways of confronting the world are characterized by certain shared attributes--they emphasize generalization, synthesis, and holism when compared with the specialization, analysis and reductionism of existing disciplines, but he then undercuts that proposition by suggesting an alternative: that good interdisciplinarity might be just a different way of specializing--by topic instead of discipline.

Interdisciplinaryians are not able to proceed by trading one existing lens for another; instead we must proceed to grind our own, which although related to existing lenses is itself new and unique. We do so not to reject the old orthodoxy of the existing disciplines or to become adherents of a new orthodoxy: we do it because it is humanly useful to us in confronting the world. That our new lenses differ is not a sign, as our devil's advocate Benson proposes, of conceptual confusion but of differences in the purposes for which we created them.

Should we know what we are about as we are doing it? Should we be aware of and take into account the assumptions underlying our work? Should we articulate the principles on which it rests? Of course. We begin to do so every time we grind a new lens through which to bring into focus something that otherwise cannot be seen clearly. In effect, every interdisciplinary formulation offers the embryonic basis for forming a new discipline. Fully articulating that basis would be a monumental task, something none of us ever does, but it ought to be possible to do so, to specify the focal length, field of vision, power, and distortion of our newly ground lens just as countless others have sought to do piecemeal over long periods of time for the lenses we now call the disciplines. If confusion is a hallmark of interdisciplinarity, it is because we fail to specify fully, not because it would be theoretically impossible to do so.

## OPENNESS

Even if it were possible to make interdisciplinarity foundational, it might not be desirable to do so. In the most recent contribution to the dialogue over the nature of interdisciplinarity, which she offers from a "postmodernist" perspective, Nicholson (1987) is "troubled" by two assumptions she ascribes to Benson and his critics: (1) that there might possibly be "only one valid theoretical approach" to interdisciplinarity, and (2) that unanimous agreement in it would even be "a desirable goal"(p. 21). To counter these assumptions, she proposes four themes--fallibilism, historicism, pragmatism, and pluralism--which interdisciplinarity has allowed to develop into "postmodernist epistemology" that produces openness toward diversity.

Nicholson "doubts" that consensus on fundamental principles of interdisciplinarity "is important enough to sacrifice the open-minded attitude of tolerance towards diversity that is both our *raison d'etre* and our best argument against our critics" (pp. 23-4). She even proposes that



interdisciplinarity's very lack of such a consensus allows the "uninhibited pursuit of knowledge" (p. 21) that academic freedom entails and that she finds lacking in the canon- and standard-ridden disciplines. Unless we "abandon the ideal of a general interdisciplinary methodology," she avers, we will be forced to "deny either academic freedom within the disciplines or the value of disciplinary standards" (p. 22).

Interdisciplinarity does involve the willingness to re-examine the conventional, be it methods and principles or the findings they yield; in this we all concur. By our willingness to reconsider we implicitly accept two premises of fallibilism: that current knowledge is constituted of hypotheses, not eternal truths, and that to presume otherwise would serve to retard the possible advancement of knowledge. Our reluctance to believe that current knowledge necessarily represents eternal truth probably shows that we are willing to entertain the historicist idea that current knowledge might reflect the contingencies of time and place.

Furthermore, we are pragmatic. Indeed, pragmatism, not openness to diversity, is our *raison d'être* and best response to our critics, because pragmatism focuses us on outcomes--on whether our interdisciplinary approach works in a particular application. Openness may produce new insights; indeed, it may be especially good at bringing to the fore those meta-questions the disciplines do not. But openness is still only a means to an end: the insights it allows us to achieve must ultimately be judged on their utility. New formulations are valuable only when they are more humanly useful than currently conventional approaches, not just because they are different.

The weakness in Nicholson's argument appears clearly in her treatment of this openness, which she calls pluralism--the fourth and final postmodern theme. The willingness to suspend disbelief and simultaneously entertain incommensurate ideas and approaches is either enduring or temporary. If the former, it would, she writes, "entail a kind of relativism in which we are imprisoned in our self-contained world views and paradigms" (p. 27). Nicholson claims to reject relativism, saying instead that pluralists regard "failure to find a common ground between conflicting perspectives ... not as a permanent tragedy, but as merely a sign of the temporary limitations of our theoretical vocabulary and current horizons" (p. 27). Were we actually to overcome those "temporary" limitations, though, would we not have achieved precisely that all-embracing general theory she so vigorously rejects? Is there any common ground that can embrace all, yet exclude none--which is the only

way it could meet her definition of academic freedom and yield the advantages she finds interdisciplinarity to offer?

Perhaps after all, Nicholson is driven to this sort of problem by her having to convey postmodern concepts through a foundationalist language. Nevertheless, I do find especially interesting some of the internal inconsistencies in her effort to build what does strike me as a relativistic defense of interdisciplinarity. Do not her propositions that fallibilism is a better way to "advance" knowledge (p. 26), that no "serious" point of view be omitted (p. 31), and that the pragmatist's defense is that something is the "best" available option (p. 27) necessarily require precisely the sort of principles or standards that could constitute criteria for evaluation and judgment that she finds constraining in foundationalism? How else could one know what constitutes an "advance," what views are or are not "serious," how to know "best" when one sees it? Though I suspect she would not affirm the comparison, it seems to me that Nicholson's language requires her interdisciplinarian to do just what Matthew Arnold's (1883) critic does: "to learn and propagate the best that is known and thought in the world" (p. 37).

Though she claims that "recognizing the metaphorical character of our usual ways of describing knowledge . . . [may free us] from the illusion that knowledge *must* have foundations in order to claim validity" (p. 31), the only solution Nicholson proposes is to generate new metaphors. Is not the "goodness of fit" between these metaphors and the (new) experience they are intended to describe the only basis for any validity they might be claimed to offer? Whenever judgment or choice cannot be evaded, beware: a principle lurks!

I find it helpful to think about interdisciplinarity in the context of Nicholson's four themes, but they do not lead me to share her anti-principial postmodern position. The difficulty I have with her work is the same one I have with postmodernism generally: both place such an extraordinary value on openness that for its sake they are willing to suffer a relativistic inability to judge, commit, and act in the world. Certainly we ought value anything that might help us come closer to finding truth, and openness is arguably such a thing. Yet being able to act on that truth effectively in the world is ultimately what human existence is about. Even in the realm of pure speculation, I think greater danger lies in the relativistic trap laid by the postmodernist assertion that absolute truth does not exist and/or that we are incapable of knowing it than in the frustrating and possibly fruitless effort to know that truth. At least this is so if we continue constantly to seek perspective on whatever it is that

constitutes the orthodoxy of the day, including that meta-discipline, if it were ever found.

Nicholson's stated rejection of relativism is surprising. Since she so consistently associates herself with the "let every flower bloom" approach, her rejection of it ultimately is not compelling.

### **LEGITIMACY**

The geopolitical metaphor, which features turf, fiefdoms, and sovereignty (Klein, 1983), at least implicitly pervades the thinking of most contributors to our dialogue. Newell (1983) is only one of many who argue that interdisciplinarity must gain legitimacy, a concept often contrasted with effectiveness in social science literature. Indeed, in our context, legitimacy might be understood as the presumption of future effectiveness based on past performance.

Benson implies that the consensus on general principles which would clear up the current confusion in interdisciplinarity would also promote its legitimacy by making it look more like things now seen to be legitimate (disciplines). Newell (1987) concurs: "... we require critical consensus about good interdisciplinary work if our programs are to have intellectual and political viability" (p. 37). With this consensus, interdisciplinary work would be "worth" more to its academic practitioners when being judged by (predominantly disciplinary) colleagues for purposes of promotion, tenure, and merit pay; without it, "we do not have a profession" (Newell 1987:38). Nicholson finds the proposition that consensus on principles would promote legitimacy a dubious one and calls consensus a "political" goal less valuable than the openness it would preclude.

Legitimacy is not an unreasonable goal, but to focus on its value as promotion and tenure currency is to be merely academic (in the most pejorative sense of that term). It also misses the point badly. It represents an example of misplaced utility--focussing on the exchange value of interdisciplinary work as a commodity (what it can be traded for) instead of on its use value (what it can do).

The only valid test of interdisciplinary work is its usefulness in confronting the world--its social utility. If interdisciplinary approaches prove more useful in addressing some pressing human concerns than do disciplinary ones, that effectiveness will contribute to their becoming seen as legitimate; almost every political regime that is today seen as

legitimate is the result of sustained effectiveness after an illegitimate birth (a successful revolution), not the divine right of kings.

Unless and until the unconventional approach, which we call interdisciplinary, proves its effectiveness, it will be doubted by those who are wed to the conventional disciplinary approach. To develop the trappings of a discipline (to become "just as good as a Xerox") without offering some clear human advantage would be another example of wearing the Emperor's new clothes. The observation that "political judgments and personal values more than philosophical analyses ... determine the definition of interdisciplinarity and the standards of excellence associated with it" (Newell 1987:39) may be empirically correct, but we will surely fail to achieve legitimacy if we concur with the normative proposition that political factors "should" do so.

## CONCLUSION

In essence, interdisciplinarity refers to currently unnamed ways of confronting the world which do not fully comport with the conventional structures currently in vogue. Like those structures, which we call disciplines, it is a means to an end, not the end itself; its contribution derives from its utility. We pursue an interdisciplinary approach not just because it is different but because we believe it is the most useful way to confront some aspect of the world, the lens which enables us to bring some subject into the proper field of vision and through which we may see that subject more clearly than through other pre-existing lenses.

Interdisciplinarity requires the willingness to look outside defined structures but not the commitment to remain outside them. Because interdisciplinarians are pre-eminently persons working in the world, we will want to make findings as persuasive as possible: if they are not persuasive, they will hardly be humanly useful. Because we cannot draw upon a single, coherent body of conventionally accepted practices, we will have to specify the assumptions, principles and methods underlying our interdisciplinary work far more clearly and fully than when we work within the context of an established discipline. We need to do this every time we propose an interdisciplinary response to the world.

It is reasonable to see every formulation properly called interdisciplinary as at least the embryonic form of a potential new discipline. If we can articulate fully enough the specifications to which we have ground this particular interdisciplinary lens, we will enable others to grind similar enough lenses that they, too, can achieve a focus and field

of vision like our own and work toward testing and refining our work. If we do our work well, our findings should become more persuasive. And if enough others find our interdisciplinary approach to be useful in engaging some compelling aspect of the world, it may over time become fully and clearly enough defined to attract a community of practitioners and become called a discipline in its own right. Not so long ago we would all have been members of but three academic tribes--natural, moral and mental philosophy. Now our tribes are more numerous and are growing in number; for every phrenology that disappears, many more (e.g. biochemistry, econometrics, and microbiology) grow out of interdisciplinary synthesis.

If this effort to seek fundamental assumptions, principles, and methods of our several interdisciplinary formulations leads ultimately to a general theory of interdisciplinarity embracing all its aspects we will have found a most powerful tool. Perhaps a meta-discipline does exist. Perhaps something will deliver what systems theory and the General Problem Solver as yet have not. Even the possibility means we should try to find it, since it would constitute an exceptionally powerful goal which would save us all from constantly reinventing the wheel. I think it at least conceivable that such a theory exists and could be sufficiently useful to justify the search; certainly finding it would enable a dialogue to develop which could make our work easier and our findings more persuasive and perhaps more nearly true. Such a theory would also make our work more "legitimate" in some academic circles. But again, the test is utility: it would be more useful to have a well-developed, universally applicable method than to lack it, but unless the work we would do through it proved to be useful in the world we would have won only a pyrrhic victory.

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