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Metaphor: A tool for developing a community of 'knowing' between asymmetric disciplinary cultures

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Disciplines are contingent conceptual frameworks defined and legitimized as such in terms of their mutual relations. However, although necessarily provisional, the core sets of beliefs and practices constituting these frameworks are fundamental for they reflect evolving cultures each with their own systems of meaning. They thus embody practices and perceptions that conflict, not only with other disciplines but also within themselves. Nonetheless, shared synoptic elements imply that some disciplines are more closely related than others. These common elements will come to the fore in interdisciplinary undertakings in which each is involved thus facilitating communication between them. But, in interdisciplinary challenges that involve disciplines so asymmetric as to appear incommensurable there is need to develop a common understanding if any meaningful communication is to take place. The nature of text enables that process. Participating simultaneously in several genres texts cannot be reduced to a single interpretive framework. Because genres are complex, open and dynamic, coherent and yet partly constituting each other, their implicit 'interdiscursivity' offers a way in which apparently incommensurable beliefs might mutually be understood. This is the context in which it is suggested that the role of metaphor in facilitating a hermeneutic progression from one context to the other is central: by allowing complex processes to be mutually explored a 'community of understanding' is shaped in an ongoing conversation reflective of the fundamentally dialogical character of society as a whole.

Keywords: complexity, hermeneutics, interdisciplinarity

Introduction

Because it is socially constructed, knowledge is subject to ongoing reinterpretation. The mutuality inherent in this process makes knowledge, therefore, both complex and transient. From this perspective, academic disciplines – attempts to capture the complexity of nature within a simple scheme (Sharrock & Read 2002) – are merely contingent conceptual frameworks only defined and legitimized as such in terms of their mutual relations. However, although necessarily provisional, the core sets of beliefs and practices constituting these frameworks are fundamental, for they reflect evolving cultures each with their own systems of meaning. It is these systems that provide dynamism to disciplines: their fission and fusion being necessary elements in the development and maintenance of disciplines (Parry 2007). In this sense, the systems exhibit features central to complexity: *autocatalysis*, the ability of a system to evolve, and *autopoiesis*, unique characteristics that enable a system to create the conditions for its own survival (Morrison 2008). The systems also provide utility to disciplines: without the

critical control exercised by professional reference-groups novel ideas “would be lost in a welter of speculative debates and polemical objections” (Peck MacDonald 1994). But, because no conceptual framework can be complete unto itself, each as a consequence of its complexity overflows into other frameworks (Sharrock & Read 2002), the membership, communication patterns and values of individuals operating within each are neither uniform nor confined to one framework alone. For this reason, disciplines embody practices and perceptions that conflict, not only with other disciplines but also within the disciplines themselves (Dillon 1991).

Disciplinary Permeability

The latter is more likely where less clearly defined criteria increase interpretive variation (Peck MacDonald 1994). This is most evident in the social sciences and humanities where abstractions constitute the fundamental issues under investigation. Because abstractions, irrespective of whether they are operationalised or not, are less amenable to measurement than material objects the theoretic constructs of the social sciences and humanities cannot, therefore, be stabilized to the same extent as is possible in the natural sciences. Thus, because their theoretic constructs are less compact and more permeable than those of the latter, disciplines in the social sciences and humanities ought, therefore, to be more amenable to interaction with one another. This, however, is not necessarily the case. Individuals in these disciplines might, for example, be prepared to yoke themselves together conceptually and methodologically in order to present a false united front to outsiders (Schoenberger 2001); in effect making their discipline less permeable. Others, though, might be encouraged to seek collaborative relationships (Rowland 2002). The latter is more likely in those disciplines that regard themselves as ‘synoptic’ – that is, providing an inclusive, comprehensive view (Klein 1994). While all disciplines import aspects of other fields to clarify their own perspectives, disciplines like sociology, anthropology, geography and history, because of their internal diversity, are peculiarly open to other disciplines. Their status as “licensed rustlers who poach stock and purloin crops from neighbours” (Becher & Trowler 2001) provides them, in other words, with a significant internal interdisciplinarity (Schoenberger 2001).

While these disciplines might be regarded as *synoptic* because of the comprehensive nature of their areas of investigation others might also be regarded as such because, for example, they incorporate as in the case of mathematics, a *language of concordance* (Klein 1994), because they share a particular register or number of specialized terms or because of theoretic contiguity between individuals within separate disciplines (Rowland 2002). Because shared synoptic elements imply that some disciplines might be more related than others (Gilbert, nd) it is logical to expect that these common elements will come to the fore in interdisciplinary undertakings in which each is involved thus facilitating communication between them. But, in interdisciplinary challenges that involve disciplines so asymmetric as to appear incommensurable where, for example, approaches premised on critical realism in the natural sciences need to be integrated with those premised on exegetic, constructivist or relativist interpretations in the humanities, there is need to develop a common understanding if any meaningful communication is to take place (Gilbert, nd). How though can communication be enabled between rational

individuals with fundamentally different schema? The answer, ironically, lies in the nature of language.

Genre

Irony because it is the language and associated literature of a disciplinary group that plays a key role in establishing its cultural identity (Becher & Trowler 2001). It does so because self is not *expressed* by language but, instead, *is created* by language (Linn 1996). The manner in which historians, sociologists or economists understand abstract nouns like *process* and *system*, or conceptual nouns like *community*, and *network* that appear to have concrete referents but are, in fact, theorized abstractions (Peck MacDonald 1994) might, therefore, be very different. In other words even in disciplines that appear commensurable because they share a common vocabulary the different discourses embodied in that vocabulary can have quite different mechanisms to convey meaning (Li 1995). Self-consciously directed toward shaping the knowledge-making purposes of a disciplinary community, language in this context is *epistemic* and, therefore, *uses* genres: fields of meaning that organize verbal and non-verbal discourses. As such they are semiotic structures that both enable and restrict meaning (Frow 2006). '*Uses*' is apposite in this context rather than '*belongs*' because the *reality* and *truths* genres create, like disciplines themselves, are not fixed and stable but relate to an economy of genres, their complexity a consequence of the complexity of that relation (Frow 2006). In this sense a text, rather than belonging to a genre participates simultaneously in several genres: texts cannot, therefore, be reduced to a single interpretive framework (Frow 2006). Genres, like disciplines, are thus complex systems: open and dynamic and partly constituting each other while at the same time maintaining their own coherence (Mason 2008). While this coherence provides a rationale for the investigation of individual difference between complex systems a focus on their dynamism and openness makes it possible to interpret and evaluate the novel outcomes precipitated by their interaction as they iteratively emerge (Mason 2008a). This is the context in which complexity theory is explained: given sufficient critical mass in a particular environment new properties and behaviours not contained in the constituent elements, or that could have been predicted from the initial conditions, will emerge (Mason, 2008a). The explicit 'interdiscursivity' of complexity theory, the simultaneous consideration of factors normally associated with quite different discursive perspectives (Mason, 2008a), thus offers a way, analogous to that of a Zen *koan* (Frow 2006), in which apparently incommensurable beliefs might mutually be understood. Thus, because it permits a mediating vocabulary to emerge between diverse disciplines incrementally and collaboratively through the integrative acts implicit in the interdisciplinary research process itself (Klein 1994), emergence also lies at the core of interdisciplinary communication.

It is in this context that the concept of a *boundary object* becomes apposite for it means that words with different meanings, while having the potential to divide, can also serve as common points of reference around which intersecting communities can develop a common understanding (Bowker & Star 1999). On this basis, 'emergence', if properly managed, is a primary constituent of interdisciplinary research not only because it reflects changed understandings between individuals from different disciplines but also because it

contributes to that change: the new insights born as a result of language change become catalysts for sparking new ideas and novel insights (EPA STAR 2001). Understanding how this process unfolds requires insight into the importance of metaphor in language.

Metaphor

The need for imperative clarity requires technical language to be denotative, that is, directive. It thus leaves little room for metaphor (Reynolds 2001). But the language of interdisciplinary work because it is required to provide insight into different meaning systems needs, instead, to be connotative, that is, to imply a meaning that goes beyond literal translation. Literal here meaning not what cannot be: a uniform and conceptually closed interpretation of a word. It means, instead, the distinction individuals draw between familiar and unfamiliar vocabularies and theories (Reason 2003). This is to invoke a model of categorization by prototype: we tend to work from what we know best in an *ad hoc* negotiation of unfamiliar experiences rather than by employing a formal grid that can be applied indifferently (Frow 2006). In doing so it also invokes the substantive point that it is possible to compare concepts in multiple ways. In this context then, metaphor, the etymology of which lies in the words *to transfer* or *to carry across*, performs a connotative function more effectively than does simile. Whereas the latter merely involves the comparison of one thing with another, the former constructs the possibilities available for meaning by invoking one meaning system to clarify an apparently unrelated system: a *startling mistake*, for example.

In each instance metaphor utilizes a concrete and commonly understood meaning, the analogue or *source* domain, to donate meaning to a poorly understood and elusive *target* domain. Metaphor, in other words, is analogy in the sense that it conveys meaning from one particular to another. But it goes beyond analogy, mere comparison. It is, instead, a device that allows complex processes to be explored and, in doing so, facilitates the shaping of understanding. This process can be seen, for example, in deciding which of the following metaphors is most appropriate to explain the manner in which genes control the development of an embryo: a blueprint (a builder builds a house by placing bricks in positions specified by the blueprint); a recipe (a cook makes a cake not by placing crumbs and currents in specified positions but by putting ingredients through specified procedures); or an origami (a process that follows a sequence of folding instructions)(Dawkins 2005). By shaping understanding metaphor is, thus, both a cognitive process and a linguistic expression reflecting that process.

But, in order for metaphor to construct the possibilities available for meaning, there need to be utilizable points of contact between the *target* and *source* domains. It is in this context that the metaphor of a *field*, as in a *field of research*, becomes so useful. In a linear sense *field* implies a flat surface with finite boundaries where change in one part will, because of its implied connectedness result in changes elsewhere in the field. It is the ability to recognize the points of contact that constitute a *field of research*, and to understand the nature of the relationship between those points, that allows a researcher fully to explore the possibilities of interdisciplinary endeavours. This recognition of the capacity of a *source* and *target* domain to be responsive to each other (Booth, Rogers & AgInsight 2000) is, essentially, a creative act for it requires an ability to reveal

connections hidden from other observers. It is ability, in other words, to recognize how change in one discipline might have implications for another, but apparently unrelated, discipline. How, for example, new insights in physics might provide new theories and analytic tools for use in English literature. But why in this example should the former be the *source* domain and the latter the *target* domain? In this instance because physics is better able to stabilize its theoretic constructs than English literature the relationship between the two reflects the asymmetry of the concrete and the elusive in metaphor. Asymmetry, in fact, is inscribed into the mechanics of metaphor: *argument is war* is very different from *war is argument* (Reynolds 2001). It is not surprising therefore, that structured and more concrete disciplines like physics will more often be a source of metaphors for a less structured discipline like English literature than the other way around. However, where structured disciplines become less confident, in the case of physics in regard to ethical issues for example, then the relationship might well be reversed. Thus, when the first atomic device was detonated in 1945 the physicist, Robert Oppenheimer, did not turn to his own discipline for a metaphor to express his awe and misgiving. He quoted, instead, from a literary work, the Baghavat-Gita: *I am become death, the shatterer of worlds*.

Heuristic and Hermeneutic

But, isolated from one another, metaphors have limitations. This is apparent in a ‘field of research’ where a vision is evoked of a flattened and easily surveyed surface connecting various points around its boundary (Booth, Rogers & AgInsight 2000). But the relationship between epistemologically distinct frameworks of knowledge is not flat and easily surveyed but multifaceted. Metaphor, therefore, maps onto a concept it seeks to describe inexactly: there are aspects of the concept that lie outside the bounds of the metaphor and also aspects of the metaphor that lie outside the bounds of the concept. Because the assumptions that cut an activity off from the external surround also marks the ways in which the activity is inevitably bound to that surround (Frow 2006), integrating these assumptions opens new opportunities for understanding: by allowing metaphors to be extended and elaborated, they allow phenomena to be explored in novel ways (Wallace & Wray 2006). In this sense the layers of metaphor used during the course of an investigation provide a history of the manner in which insights are developed for, at each level of complexity, entirely new insights are generated that require inspiration and creativity to just as great a degree as was initially the case (Mason 2008b). It is also in this sense that the heuristic at the heart of metaphor construction is revealed.

As a noun ‘heuristic’ is a device, a metaphor, story, cartoon or graph, for example, constructed in such a way as to capture the essence of a complex concept. As an adjective it describes a series of creative rather than rational processes to develop interpretive conceptualisations that are thought provoking but not prescriptive (Stabile 2006). For this reason these processes, in this case metaphor construction, are not discrete and linear but iterative, each iteration or act of creative synthesis adding a new layer of complexity and understanding (Stabile 2006). Reconciling asymmetrical research approaches in an interdisciplinary research undertaking is not, therefore, a response to a question that implies disciplines are binary constructs. Instead, metaphor creation requires a ‘to and

from movement between the parts and the whole: a cycle of differentiation, clarification, and synthesis that reflexively builds layers of understanding of the tools and theories that need to be explained and understood (MacMynowski, nd). This, in essence, is the process of hermeneutics: an attempt to establish a 'community of understanding' through a dialectic progression from one context to the other (Booth, Rogers & AgInsight 2000). In this context theorists in the hermeneutic tradition like Dewey, Kuhn, Rorty, Derrida and Feyerabend do not interpret 'dialectic' in the Platonic sense of "turning the soul around ... so the eye of the soul ... travels the road of inquiry ... and proceeds to the first principle itself" (Rumana 2000). Because we can never exhaust the meaning of what we seek to understand or bring understanding to final closure (Bernstein 1983), they view dialectic instead as an ongoing conversation reflective of the fundamentally dialogical character of society.

Implications

This perspective has a number of important implications. First, it shifts the model of rationality from that which seeks determinate rules to one that emphasizes the role of exemplars and judgmental interpretation (Bernstein 1983). Second, all scientific theorizing, in the broadest sense of the term, requires an attitude of provisionality and systematic doubt to remain self-critical (Dillon 1991). Third, an ethnographic approach to the development of understanding is implicitly encouraged. In the context of disciplines genre knowledge is situated knowledge, best comprehended, therefore, through immersion, rather than by being taught. It is, in other words, by entering the disciplinary conversation, rather than analyzing its conventions, that interdisciplinary understanding develops (Peck MacDonald 1994). Fourth, *discontinuity* is replaced with *simultaneity*. Because complexity rests on an understanding of phenomena as part of a fabric of relations there can be "no simple idea, because a simple idea ... is always inserted, to be understood, in a complex system of thoughts and experiences" (Alhadeff-Jones 2008). There can be no distinction, therefore, between knower and knowledge or, because discourses – as is the case with disciplines – only have meaning in relation to each other, no discourse or discipline that stands alone (Davis 2008). This is a reflection of the intrinsic nature of complex systems: closed systems in equilibrium die; complex systems need disequilibria in order to survive. As such they are emergences, produced not only from their constituting order, but also from the disorder characterizing the relations among their components (Alhadeff-Jones 2008). Fifth, insights emerging from the hermeneutic circle are organizing knowledge in the sense that they contribute to a reordering of the totality of understanding. In this sense also they are an implicit critique of traditional modes of organizing knowledge (Alhadeff-Jones 2008). Sixth, the processes of hermeneutics indicate how abstractions guide interpretation of particulars and how interpretation of particulars, in turn, helps form further abstractions. All academic knowledge making, therefore, is a consequence of interplay between both induction and deduction (Peck MacDonald 1994): "If we look carefully at how creative, eminent scientists describe their own work, we find [a world] which uses logical analysis as a critical tool in the refinement of ideas, but which often begins in a very different place, where imagery, metaphor and analogy.... are proponent" (Barger & Duncan 1982). This is not an implication that there are no important differences between disciplines in the

humanities and the social and natural sciences. It is an implication, instead, that distinctions between disciplines should no longer be drawn in phallogocentric terms, such as hard and soft (Linn 1996). These distinctions valorise a particular view of academic work because they are grounded in the values of that view (Peck MacDonald 1994). Nonetheless, seventh, epistemic knowledge is suspect because by positing a common ground founded upon a common rationality it seeks an end point - common agreement - within the episteme and, thus, the end of intellectual exchange (Dillon 1991). In the hermeneutic tradition, therefore, conversation replaces argument and dialogue for, because it has no agenda, it lacks an internal tendency toward resolution or closure (Dillon 1991). Conversation is, thus, considered an end in itself: “as soon as one sees one’s self as making rather than finding - as a proposer of rules rather than a discoverer of facts - one realizes the possibility of alternative rules, and of a plurality of interpretations of any proposed rule. This realization permits one to engage, for the first time, in genuine dialogue” (Rumana 2000). Eighth, the move away from epistemic knowledge and the remodeling of rationality has shifted the focus of knowledge making away from abstract logic to community and process instead: “the process whereby a community of practitioners gives reasons for its choices, carries on negotiation and persuasion within the community, and selects some problems and solutions as superior to others on the basis of shared... understandings” (Peck MacDonald 1994). Ninth, that the use of knowledge as a verb, as a perception of it as an ongoing, evolving process yet stable enough to enable communication, is more appropriate than its implied fixity and separateness from the knower when used as a noun (Reason 2003).

Conclusion

Disciplines are communities of practice committed to the regulative ideal of developing norms through rational consensus (Bernstein 1983). This explains their appeal: “By conforming to the norms, individuals can get perfect strangers to take their words seriously, even to cite them, and sometimes to assent” (Dillon 1991). However, it also explains the limitation of those norms: knowing is inseparable from social practice, the practice of justifying one’s assertions to the community. But, because reason, rather than being the dominant voice, is only one of those that clamour for an individual’s attention, even the results of rational consensus are arguments rather than demonstrations (Dillon 1991). It is in this context that Rorty writes: “For my anti-hierarchical purposes, I find it helpful to say, with Kuhn, that whether or not individual practitioners are aware of it, they are trained to and rewarded for solving intricate puzzles — be they instrumental, theoretical, logical, or mathematical — at the interface between their phenomenal world and their community’s beliefs about it” (Rorty 1999). It is in this sense too that the dichotomy between objectivism and relativism becomes pernicious (Bernstein 1983) and epistemological claims to universality become suspect. Hermeneutics, however, has ontological significance and, thus, a claim to universality precisely because from its perspective to be rational is to be willing to refrain from epistemology, from thinking that there is a special set of terms in which all contributions to the knowledge making conversation should be put (Dillon 1991). It is, instead, a process, a complex of virtuous attitudes: “the ability to listen and ‘decenter’, and thus dialogically to enter the lifeworld of the other; a passion for the openness and endlessness of the conversation; an

orientation toward a sense of wonder; and a sense of the provisionality and limitations of any practice however successful”(Dillon 1991). Disciplinary perspectives and practices might, therefore, be asymmetrical but, because they are part of social practice, cannot be incommensurable. In fact, just as metaphor construction draws part of its strength from its inscribed asymmetry, so hermeneutics generates its greatest creative energy when communicating between asymmetric disciplines. This communication through metaphor is, however, of a special kind, it is holistic, iterative and allusive, each step “more like grasping a proverb, catching an allusion, seeing a joke... than it is like achieving communion” (Bernstein 1983). Metaphor thus, by its very nature, lacks precision; it is instead its originality that enables individuals to see things differently. This explains why metaphor construction is a higher order metacognitive skill (Manatunga, Lant & Mellick 2006). It also explains why Rorty sees metaphor rather than reason or truth as lying at the root of intellectual history: “A sense of human history as the history of successive metaphors would let us see the poet, in the generic sense of the maker of new worlds, the shaper of new languages, as the vanguard of the species” (Linn 1996). It is also in this sense, therefore, that metaphor can be considered in evolutionary terms as a useful mutation enduring only so long as a particular environment is receptive to it. But, because language cannot ground itself as literal, at no time is anything being accurately represented: all metaphor can do is provide insight into the complexities generated by earlier metaphors (Linn 1996).

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