

2.5 Disciplines for the Common Good: From insular to systemic interdisciplinarity

by Filippo Dal Fiore¹

The issue of mutual acknowledgement and respect among different knowledge branches is pivotal when addressing complexity and solving problems in our interconnected world. Any disciplinary solution proposed as “the ultimate blueprint” is likely to have unforeseen repercussions in other realms, the role and importance of which would be underestimated. As a consequence, global decision makers can end up pursuing problematic solutions or even disregard expert knowledge altogether and follow their own agendas.

In this paper, I argue for the necessity of different disciplines converging towards priorities determined by a shared notion of common sense and the common good. In parallel, I justify the need of complementing what I define as *insular interdisciplinarity*, or explorations within a scientific community around a well-defined topic, with a more *systemic* approach that tracks the interdependencies among different macro-topics which are relevant to a well-defined issue.

The challenge ahead of us

The nature of problems in today’s world is complex, as they are not self-contained but have co-evolved and are interconnected (Jervis, 1997). This implies that, in order to thoroughly

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understand them, we need to tackle them as pieces of a larger puzzle as well as observing them in isolation.

As an example, let's consider the issue of global warming. First, we need to define the problem scientifically, relate it to our existing knowledge in the field of meteorology, and also observe its manifestation through the latest methods and tools of the natural sciences. Subsequently, we need to understand why the problem exists in the first place, hence the need to address topics like climate cycles, economic growth, human ethics, polluting technologies, lifestyles, ecosystems, among others. Ultimately, in order to tackle and potentially solve the problem, we need politics, common intents, financial incentives, negotiation, individual action, behavioral change, sustainable technologies, theory as well as practice, rationality as well as emotions.

Expert knowledge exists within all the areas listed above and certainly still has plenty of room for growth. What most often is missing is their mutual acknowledgement, as well as a sense of partnership between experts to solve the same problem (i.e. climate change as a whole), defined and prioritized in the same way. Each discipline addresses a subsection of it, shedding light from its unique angle, but perhaps also underestimating the way in which the content of the observation is the complex manifestation of many other forces and therefore should not be reduced to any subset of them (Anderson, 1972).

Any disciplinary solution implemented as the ultimate blueprint to address a given problem is likely to have unforeseen repercussions in other realms: for example, ambitious economists may push an economic solution, e.g. a new policy, while underestimating its political, environmental and cultural implications. Ambitious engineers may push a technological solution, e.g. a new technology, while underestimating its economic, cultural and political implications. Ambitious humanists may push a cultural solution, e.g. a new philosophy, and underestimate its economic, ecological and political implications. The same could apply to any disciplinary expert, if they were to lack the time and incentives to estimate all derived implications on other fields, putting vested interests before the common good.

In this manner, disciplines may become part of the problem instead of the solution, leading to tainted policies, as in the example provided by Pontecorvo on the management of fisheries (Pontecorvo, 2003).

The unintended consequences of disciplines

The multi-faceted and complex nature of our social world leaves room for all disciplines and perspectives to understand it. Each of them prioritizes a specific aspect, leverages on a different epistemology, and relies – more or less explicitly – on a certain set of assumptions (Lele and Norgaard, 2005).

For this reason, I argue that each of them is to be considered partial and complementary to others, rather than exclusive or superior. Instead, within their logic and beauty, most disciplines and perspectives seem to give to their promoters good reasons to believe that they are superior to others, since “everything can be explained through them”. In most cases, such overestimation may be exacerbated by mutual ignorance or by thinking to know more about “rival” perspectives than it is actually the case (Schroeder, 1997).

The science vs. God debate could be seen as a prime example of such misunderstanding: proponents of both perspectives seem to have sound reasons to believe that they are superior; both claim to know what the rival perspective is about and why; both appear convinced that their perspective cannot be reconciled with the other and exclude it a priori (Schroeder, 1997).

The attitude of mutual exclusion is subtly facilitated by language, in ways that we may not overtly be conscious of, most notably by preferring exclusive logical connectors, i.e. “or”, “either...or”, to inclusive ones, i.e. “and”, “both...and”. Such customary expressions may reflect a philosophically-rooted attitude to search reassurance in univocal truths, eventually leading to ideology if coupled with the human impulse to feel superior to others.

The very human (and in this respect legitimate and understandable) pursuit of self-reassurance and self-confidence may increase with the amount of time, energy and sacrifice that individuals dedicate to their disciplinary fields of expertise. Their personal and social identities rely on such commitment (Cerulo, 1997); deep satisfaction is derived from their beauty. Such emotional compensation lead the way towards wonderful and important disciplinary enterprises, but it may come at the expense of accepting other perspectives as equally important and deserving. The same may hold true not only for disciplines and epistemologies but also for professions, cultures and nationalities.

For instance: on which basis can we affirm that theory is superior to practice or rationality to emotionality? We would need to ground our reasoning on several assumptions or cultural axioms, prioritizing certain aspects of human behavior over others. This search for superiority may lead to misunderstandings and conflicts with other perspectives, which most likely are equally needed to understand reality, accept its complexity and eventually acknowledge our partial ignorance of it. On the contrary, humility and fraternity would be among the most important assets for the pursuit of interdisciplinary acknowledgement and mutual respect².

Psychological and ethical considerations aside, an additional downside of disciplinary overspecialization may be that of introversion and self-centeredness in the growth of knowledge if the search for problems and solutions is done exclusively within and for the discipline. We may end up unnecessarily overcomplicating reality, i.e. building a parallel reality from the reification of new theoretical entities, rather than making it more intelligible. The more time we spend going in depth within one particular perspective, the more we run the risk of isolating ourselves from the rest of the world, distracted from its primary and commonly accepted problems and unable to see the bigger picture.

Eventually, we may detach from a universal and normative common sense, which seems to coincide with those axioms on which all human beings in all cultures seem to agree, especially in regards to what is to be considered good and what is to be considered bad in human behavior (Emmons, 1972). As an example, we may hypothesize that some of the bankers and finance professionals held partly accountable for the recent global financial crisis were so self-absorbed by the beauty and power of their own money-maximizing algorithms that they overlooked the moral implications of what they were doing.

² Granted the 2009 Nobel Peace Prize, US President Barack Obama may exemplify a new style of communication as here described.

Such normative common sense may be then linked to what we call “common good”, i.e. it may be precondition for it. If we detach from common sense, it may be more difficult to see the common good, i.e. what is universally considered good for humankind as a whole. Such universal common good may be grounded in those values which seem to be positively connoted across all cultures, such as life, justice, respect, natural environment, balance.

Last but not least, we need to acknowledge that another important set of reasons for people to advocate the superiority of a discipline over others is political in nature. Indeed, disciplinary research and speculation may overlap with partisan interests and interest groups on which they may depend for financial support and political influence. Economics is pushed forward by businessmen and entrepreneurs; the life sciences by the pharmaceutical industry; the humanities by artists and intellectuals; the engineering by the military and the industry.

In some cases, such partisanship may be the ultimate reason to detach disciplines from the pursuit of the common good.

From insular to systemic interdisciplinarity

The issue of the insularity of scientific disciplines has been explored from different angles (Becher, 1990; Becher and Trowler, 2001; Overington, 1977). In order to publish in a given journal, the researcher most often needs to employ its terminology, cite previous work on the topic (Hamilton, 1990), as this is defined by the journal, and acknowledge (if not respect) what the journal sees as the most important theories and methods to understand the topic.

Journals are direct expressions of scientific communities, which by definition aim at defining who is to be considered part of the community vs. who is not. Among others, such insularity may serve two main roles: on the one hand, it grants the linear and incremental expansion of the knowledge base towards further specialization and detail; on the other hand, it confers a sense of social identity to the members of the community. Scientific communities are becoming more and more multi-disciplinary in that they invite experts from different disciplines to contribute to a given topic.

From a research standpoint (at least in the social sciences which I am familiar with) what is most problematic is that the topic itself dynamically changes as the result of complex forces of interdependence with other topics, and such interdependence is most often overlooked within the scientific community. For example, a journal in the field of transportation research could host articles related to the broad field of transportation written by a wide array of disciplinary experts: from geographers to economists, psychologists to engineers. Each would offer his or her perspective on the main topic; what I find to be missing in most cases is the acknowledgment and analysis of how the evolution of other high-order topics (i.e. society, economy, psychology) is affecting the topic itself (i.e. human mobility).

In other worlds, topics – and eventually disciplines – may end up being developed in a vacuum, as if they were not complexly intertwined with other topics or disciplines. When existing, the analyses of the impact of one topic on another takes place almost exclusively within individual papers oriented to single hypothesis testing (based on ques-

tions such as: “does more economic growth lead to more car traffic?”). Instead, very few journals focus on the evolving relationships between topics, e.g. – following our example – “Journal on the interdependence between the economy and transportation”.

This problem is exacerbated by the fact that each topic is most certainly linked to more topics than one can imagine due to the higher and higher degrees of complexity and interconnectedness in today’s global world. For example, transport and Chinese literature might look distant and unrelated, but only at a first sight: indeed, one could argue that Chinese literature contributed to today’s Chinese culture in ways which in turn affect travel habits of Chinese people. In the same way, agriculture in Africa is affected by politics in the US, e.g. protectionist measures to shore off American agriculture from African competition, which in turn is affected by such disparate phenomena as Mexican immigration to the US, emerging agricultural technologies and the whims of global financial markets.

The same reasoning could also apply to the human body and the field of medicine. Different organs, the body and the mind, and the present and the past of a patient can all be considered discrete elements, yet they too interact in highly complex manners. Such interactions may make each disease manifestation unique (Gawande, 2003).

Most often, nevertheless, instead of integrating topics into their larger network, disciplines abstract topics from it, in order to allow further in-depth explorations. The manner in which they pursue interdisciplinarity, if they pursue it in the first place, is insular, as they approach a pillar topic *insulated* from complexity. Hence, beyond having different disciplines trying to explain the same issue from different angles – which could be defined as “insular interdisciplinarity” – I see the complementary need of explaining why a given issue is evolving as the result of interdependences with other issues – which could be defined as “systemic interdisciplinarity”.

The pursuit of insular interdisciplinarity also applies to the business world. When designing a new product or service – for the sake of simplicity, a t-shirt – one needs to take into account its multiple roles: an ensemble of physical materials, an object of fashion, the result of a manufacturing process, an item to be sold at a price, a piece of clothing for people of different ages and cultures, and so on. The more the design process takes into account and mediates the contributions of different disciplines, e.g. material sciences, fashion, operational sciences and logistics, marketing, the more successful the final product is likely to be.

Nevertheless this is not enough, since selling t-shirts also has to do with the ability of matching them with other pieces of dress (i.e. trousers), the popularity of shirts as an alternative to t-shirts, shifts in the global economy that determine available expenditures for t-shirts, global fashions which determine the overall popularity of t-shirts, cheaper production modes such as outsourcing, and so on. As in the case of scientific research, systemic interdisciplinarity could be pursued by accounting for systemic complexity.

Conclusion

In this paper I have argued for the need of convergence of different disciplines for the common good. One of the most difficult steps for researchers and practitioners is the internalization of a new attitude toward knowledge creation: to recognize the equal importance

and necessity of all disciplines, epistemologies and methods, and overcome psychologically and politically justified superiority or inferiority complexes.

Hopefully, a new awareness as well as the practice of common sense would limit a self-centeredness in the growth of knowledge which ultimately hampers the search for the truth in science, favors partisanship and polarizes discussion in the public opinion, as well as prevents comprehensive decision-making in politics and society. In this respect, further research is needed to explore how positivist scientific epistemologies can be reconciled with holistic and normative common sense.

I also argued for the need to complement what I defined as insular interdisciplinarity with systemic interdisciplinarity. If the former aims to approach a given issue from different disciplinary angles, the latter focuses on exploring how that given issue is the result of interdependence with other issues.

Ultimately, I see the pursuit of the common good as well as the practice of systemic interdisciplinarity as two fundamental steps to give humankind a better chance to address the biggest challenges of our time, from climate change to extreme poverty, from global security to population growth.

In parallel, the way forward should include a rethinking of the role of the individual, as well as introduce new incentives within society and its institutions. Not only to reward disciplinary expertise – which we still very much need – but also well-roundness and humility, empathy and wisdom.

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